JUNE 9, 1956
VOL. 150 — NO. 23

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

CUSTODIANS OF SERVICE

The plant man's job is to maintain good telephone service at reasonable cost to his company. Article on page 20 describes some improved methods and materials in the maintenance and construction field in recent years.

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MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

XUM

The first burro to reach the next pole will hardly set a record for long distance racing. But, because this line is strung with Amertel 135, the next pole is a long way off.

Since it permits longer spans, high-strength Amertel 135 cuts the cost of pole installation and maintenance. You don't have to dig so many holes, and you don't have to set so many poles.

Amertel 135 has low electrical resistance and far better voice transmission qualities than BB wire.

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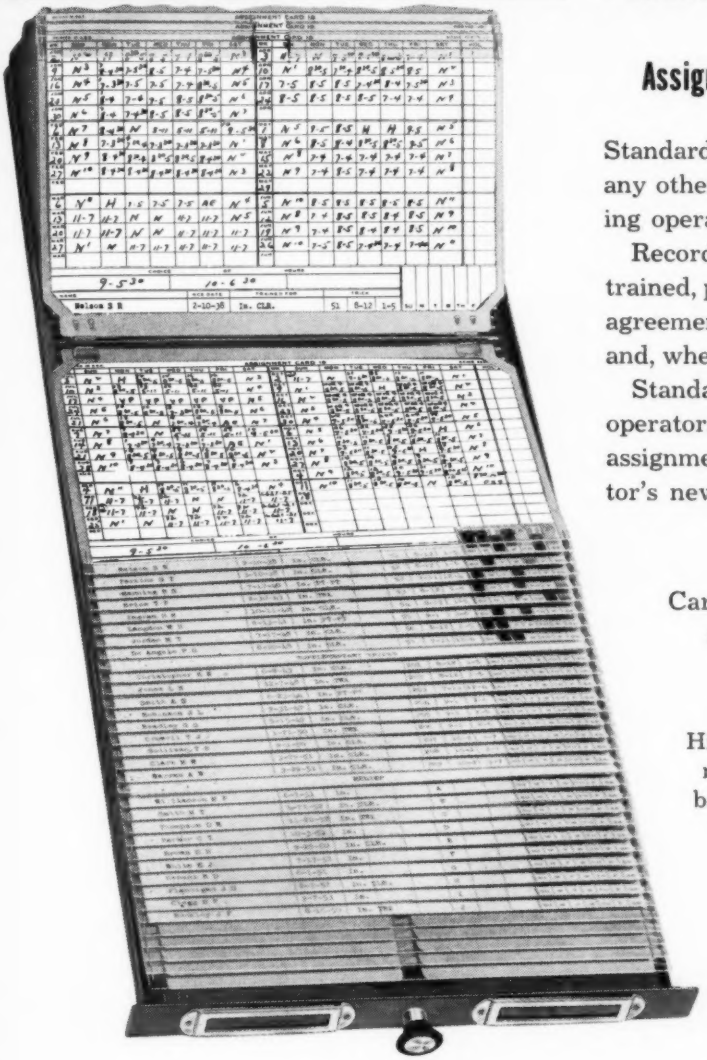
ACME VISIBLE

FORCE ADJUSTMENT RECORD

Visible Card Method for Assignment of Operators' Tours of Duty and Days Off



Standard for the telephone industry and used more than any other method or combination of methods for assigning operators' tours of duty and days off.

Record shows the assignments for which an operator is trained, personal preferences, seniority and local working agreements. Holiday and night tours are fairly assigned and, when possible, in accordance with individual wishes.

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Card Books, Easel-Type Card Books, and Cabinets are standard for the record—selection depending upon size of force, office procedure, etc.

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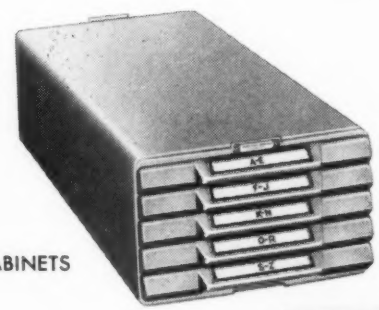

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Company ..... Attention .....

Address .....

City ..... Zone ..... State .....

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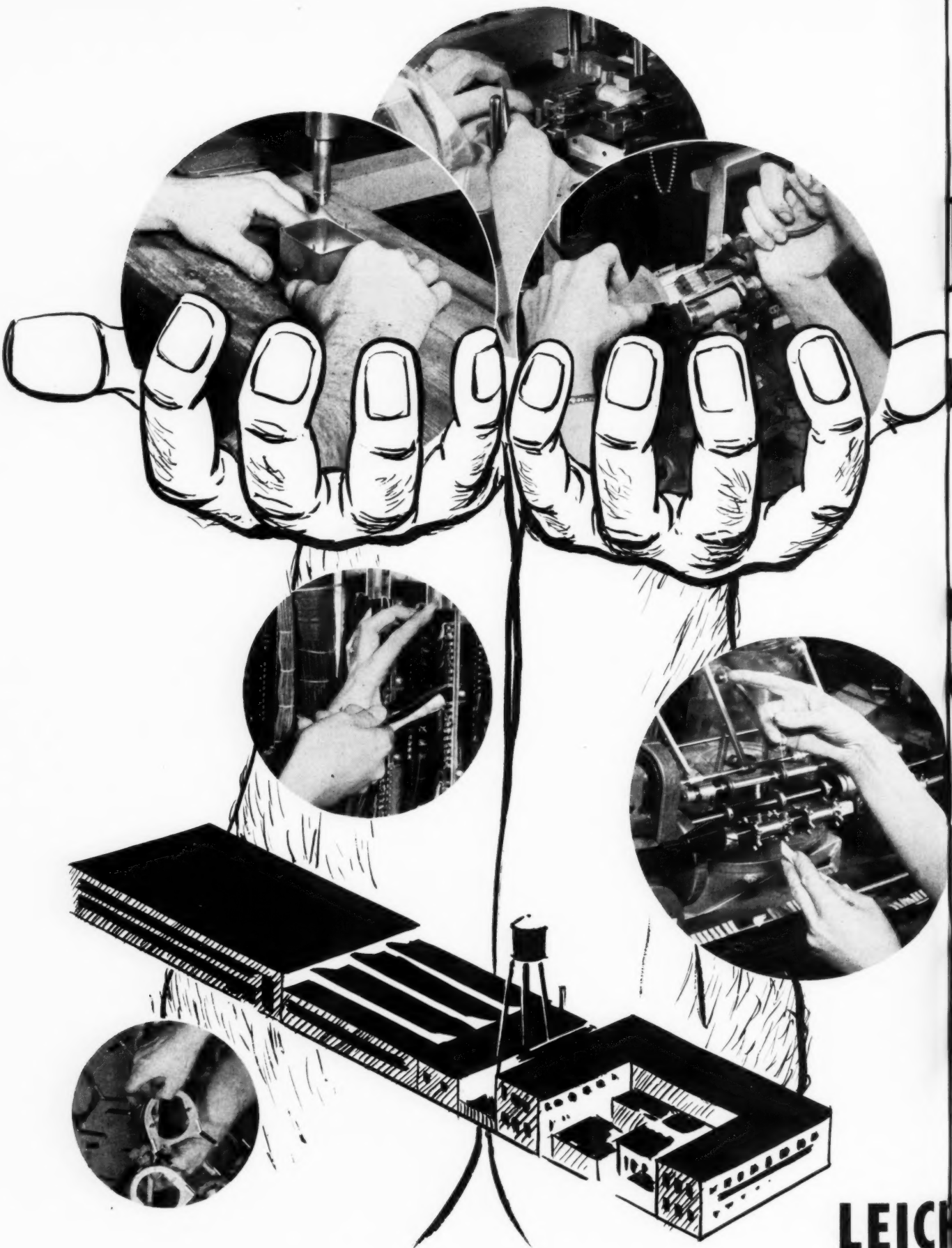
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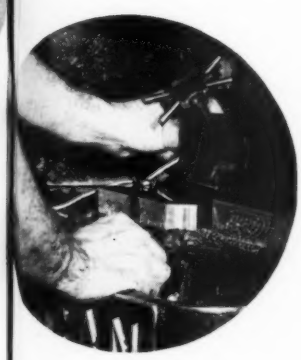

The thousand hands at Leich Electric are at your service. Their skill and care is the most important factor in making telephone equipment that gives you dependable service at less cost. It's well then that these hands belong to people who are proud of their work . . . of the products they make. For it's this pride that makes your Leich equipment . . . just a little bit better . . . than even you expected.

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GENERAL SYSTEM

FLASHES AND PLUGS

OH, THOSE RUSSIANS. Russia now claims that it was first with the wireless and that it was the invention of Alexander Popov, comments H. I. Phillips in the *Jersey City Journal*. He goes on to say: "Dr. Z. Willoughby Research, our expert in all such matters, says this is correct. 'I remember the Popovs very well. There were three, and this was the one in the middle,' he says.

"One Popov invented the telephone, the talking machine and movies. Another gave the world the first steamboat, the cotton gin, the electric light, the zipper and insulin. Alexander was content with the radio, the submarine, telegraphy and the electric milk-shaker. He made the first radio sending apparatus in Omsk while playing chess.

"It was rather clumsy. The ice cubes were too small and when the gas failed the operator had to use a dry battery or ball pen. The first words tried in the experiments were 'Capitalistic dog!' And to this day the U.S.S.R. likes it better than anything sent since.

" 'In fact, Moscow didn't care much for the wireless instrument but loved those two words. It was first used at sea when a Russian caviar boat struck a submerged full beard. It flashed the message: "Come at once and bring confession." The sea sled did not understand, as it was being operated by remote agenda.'

" 'Why didn't Russia have the first household radio?' we asked.

" 'It did, said Willoughby. 'It was called Popov's Popin and Popout Machine. No aerial. It worked by provocative gestures. Ah, those early Soviet radio programs!'

" 'What were they?'

" 'Don't tell me you don't remember the Unhappiness Boys, the Siberian Gingerale Eskimos, Amos and Andrei, Kate Smiddikov and Georgi and Sonia Allen.'

" 'How did it all work out?'

" 'Oh, the voices didn't come through but you could always go to the Russian Embassy and find out whether it was music, dialogue, propaganda or pure imagination,' said Willoughby.

" 'Whatever became of Popov?' we asked.

" 'He went out into the steppes to study static, or out in the static to study steppes and got lost,' concluded Willoughby. 'They kept turning the dial but could never find him.' "

•

THE LONG WAY 'ROUND. If you've ever been impatient for a dial tone, pity the poor people of Munich, Germany, who have to wait for three dial tones. Directory instructions read:

(A) Lift the receiver and wait for the house dial tone (dit dit da).

(B) Press the button on the instrument and wait for the Third Army dial tone (dit dit dit).

(C) Then dial nine and wait for the Munich City dial tone (dit da).

(D) Then dial the city number desired. Dat's all.

CIRCULATION

Guaranteed circulation of this issue is 11,203 of which 10,656 is paid.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

June 9, 1956

CONTENTS

IN THE NATION'S CAPITAL 17
By Francis X. Welch

PLANT TECHNIQUES AND MATERIALS —Part I 20
By G. P. Barney

THE PLANT MAN'S NOTEBOOK 28
By Ray Blain

THE PLANT MAN'S QUIZ 30
By Ray Blain

THE OPERATOR'S CORNER 32
By Mayme Workman

TELEPHONY'S PBX SERVICE ADVISERS' HANDBOOK 36
By Gilbert R. Brackett

THE COURSE OF AMERICA IS UPWARD 38
By Bartlett T. Miller

COURTS AND COMMISSIONS 42

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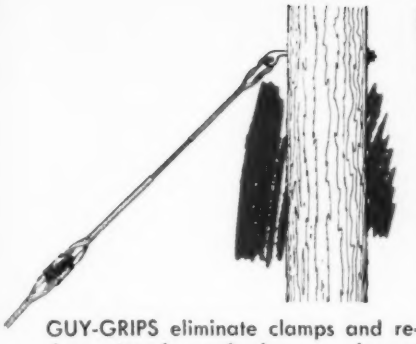

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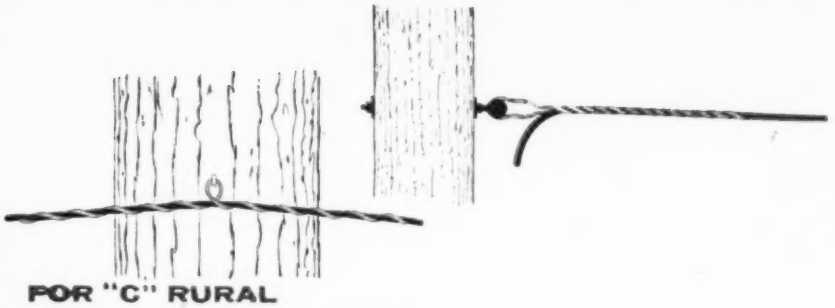

FOR "C" RURAL

TANGENT SUPPORTS AND DEAD-ENDS

Made of stainless steel for corrosion resistance, these Preformed Tangent Supports and Dead-Ends are coated with Neoprene to cushion their grip and uniformly distribute holding pressure. Designed for 2 - #14 or 2 - #12 "C" Rural conductors, they assure a low radial pressure over the entire holding area and prevent slipping, thus eliminating a major cause of resagging. Note multiple-wire bail of Dead-End.

for the Telephone Industry . . .

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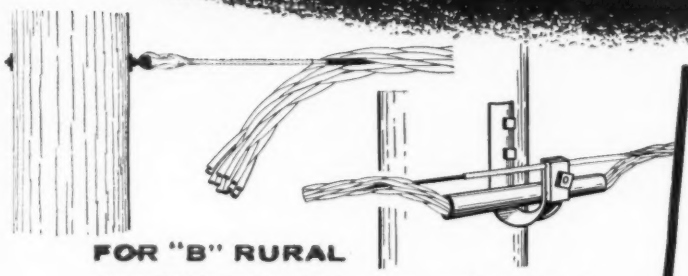

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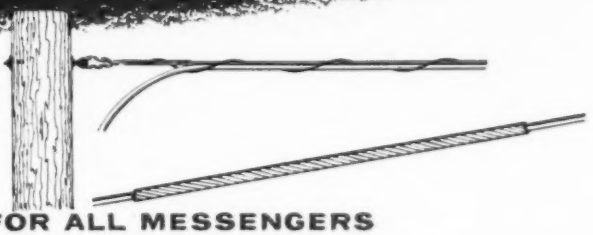

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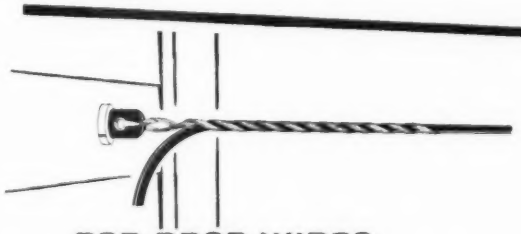

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This unique construction is only one of the many reasons Exide-Manchex Batteries prove so superior in so many applications. When you order batteries for floating service applications, or the equipment that requires such batteries, be sure to specify Exide-Manchex. Write for detailed bulletin. Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 2, Pa.

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quality and
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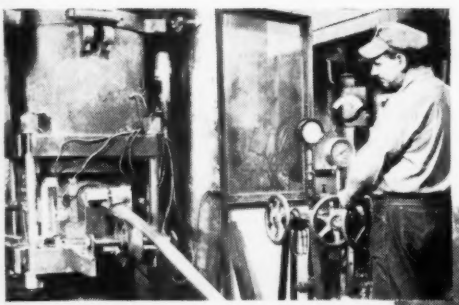
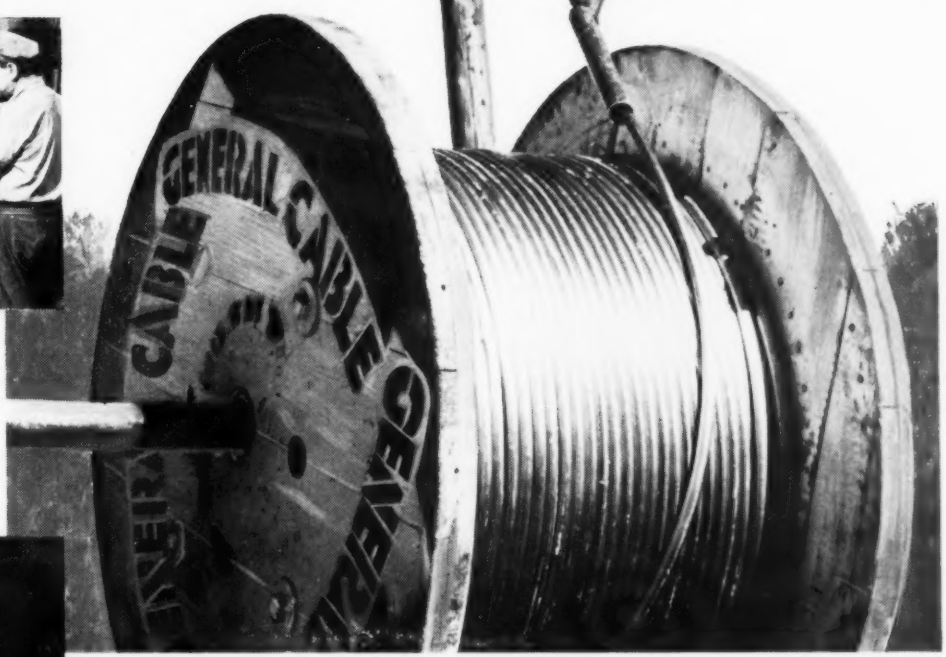


Lead Press Extrudes a Lead Sheath
Over the Insulated Cable Core.

Telephone Cable Testing



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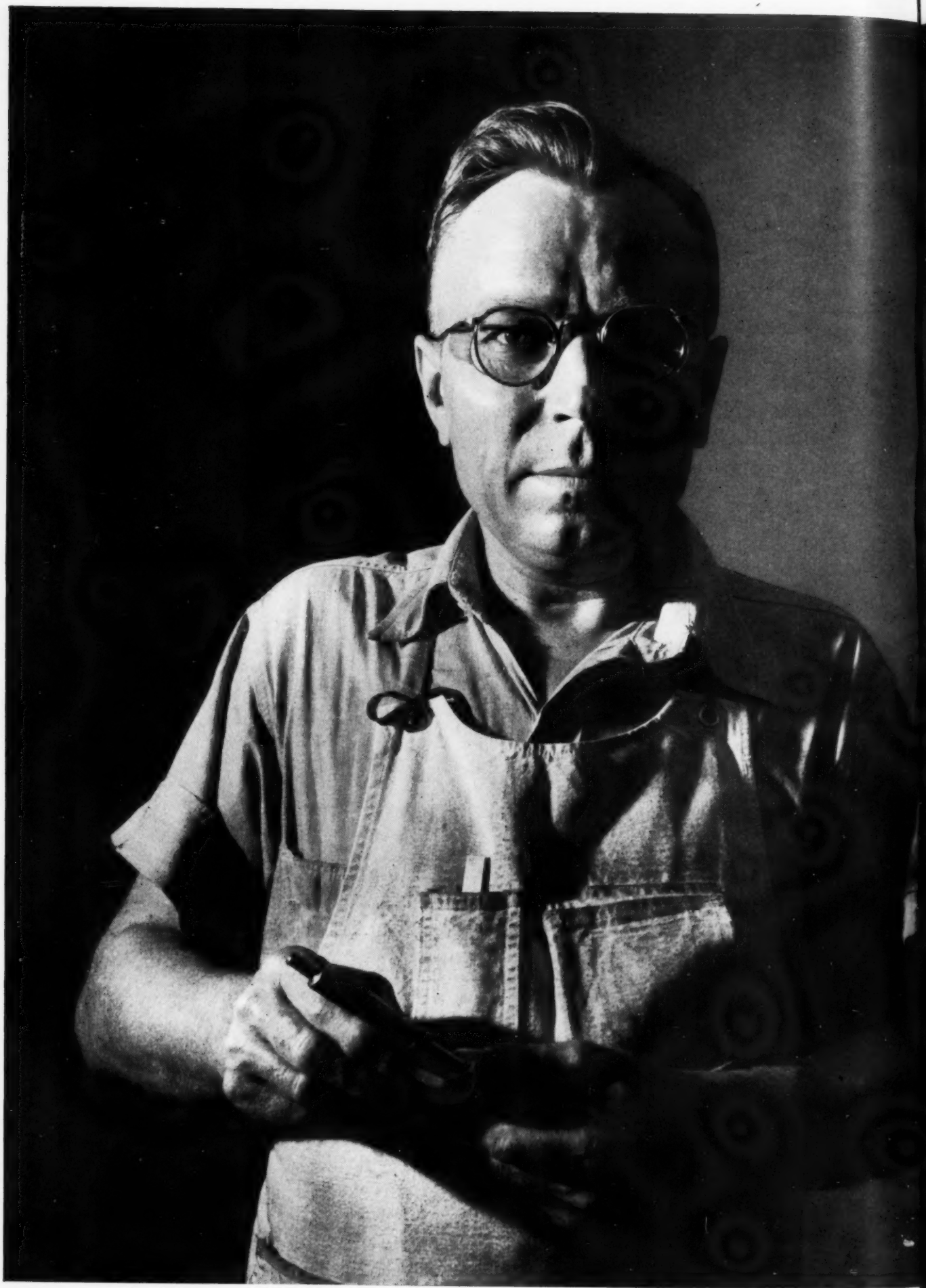

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PORTRAIT OF AN INDUSTRY

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He sets up and operates machines. Parts turned out may require checking with a micrometer to the thousandth of an inch. His is a key role in the production of dependable telephone equipment for the Bell telephone companies.

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BUT you can buy

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3,6,11, and 16 pair. #19 AWG copper with polyethylene insulation and color-coded polyvinyl chloride covering. Polyethylene covered high strength steel core. Excellent transmission properties. Easy to install — light weight, self-supporting, no cross arms needed.

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INDEPENDENT

which so many others have yet to gain . . . EXPERIENCE

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NEW HAVEN 14, CONNECTICUT

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR

David A. Hamil named to be new REA administrator. REA questionnaire mailed. Progress slows on wage-hour amendments. Senate approves highway legislation. FCC pay raise slows in committee. Release of very high frequencies refused. FCC's ownership rules upheld. Utility sold in excess of both cost and value. REA OKs largest telephone loan—$6,895,000.

THE NAMING of David A. Hamil to be the new REA administrator to succeed Ancher Nelsen (who resigned on May 15 to run for governor of Minnesota) resolves a knotty problem on the Washington scene. Nearly a score of names had been mentioned as possibilities before President Eisenhower settled the question on May 28.

Hamil is a noncontroversial figure and should be able to obtain Senate confirmation without any real trouble. Of course, he faces a problem (not of his making) posed by the ultra-politically sensitive post to which he has been named. The public ownership bloc in the Senate were all set to go on the warpath, and start a full-dress debate on any Eisenhower nomination of a successor to Interior Secretary McKay (who resigned on Apr. 15 to run against Senator Morse of Oregon).

Eisenhower neatly countered the strategy of the public power bloc by naming a former Nebraska Senator, Fred A. Seaton, to succeed McKay. Under the traditional rule of senatorial courtesy, the public-power Senators had to forego the opportunity of roasting the administration's public power policies under McKay. They had to make the best of the situation and say nice things about their former club member, Fred Seaton.

But David Hamil is not a former U. S. Senator. That makes him fair game for senatorial cross-examination on whether he believes, heart and soul, in the REA co-op movement, whether he will favor publicly owned power agencies, and what he thinks of the business-managed public utilities in general.

This does not mean that Hamil's confirmation is threatened, even if he gives some answers the public power Senators do not like. They are out to make campaign medicine and think that the more argument about administration power policy they can work up (with attendant publicity) the better their electioneering chances will be.

Actually, Hamil's background is more that of a businessman than a politician. He has a successful cattle feed business in Atwood, Colo. He is serving his third term as speaker of the Colorado House of Representatives. In 1954, he lost out in his bid to become governor of Colorado against the popular Democratic veteran of that state, Ed Johnson, the present incumbent.

Until Hamil is confirmed, K. L. Scott will continue as the temporarily designated head of REA. Scott will also serve at his regular post of director of the Agriculture Credit Services program.

REA Deputy Administrator Fred Strong will also continue on the job, as will Assistant Administrators Roy Zook and Jack O'Shaughnessy.

REA Questionnaire

An REA advisory group is circulating a questionnaire to thousands of small telephone companies, as well as to cooperatives. The purpose is to gather data on the effectiveness of the REA's rural telephone program and find out if it can be more helpful. The advisory group, composed of REA staff experts, as well as industry and co-op representatives, agreed last January to send out such a questionnaire.

On May 27 the questionnaire was sent out. It asks, among other things, whether the telephone companies are having difficulty raising funds for necessary plant expansion and whether the REA rural telephone loan program could fit into the local needs, in this respect.

Information collected from this list of questions will be used by the advisory committee to recommend any steps, in policy or administration, which the REA might take to make rural telephone loans more generally available in the public interest. REA is now faced with the responsibility of allocating an additional 100 million dollars in loans during the coming fiscal year.

At this writing, it is not known whether REA will get the full 100 million dollars in unconditional appropriations for new rural telephone loans during the coming fiscal year—or whether the same amount will be camouflaged somewhat in the form of a contingency reserve authority for part of that amount. As the Agriculture Appropriations Bill passed the Senate, the full 100 million dollars, without strings, was approved for fiscal 1957.

The House voted to split the amount in straight authorization, plus a contingency reserve on which the Agriculture Secretary could call if more loan money were needed.

Either way, this represents a record amount for REA's rural telephone program. A Senate-House conference was to settle the differences between the two chambers this week.

Wage-hour Amendments Falter

The switch of Senator Douglas (D., Ill.) from the Senate Labor Committee to the Senate Finance Committee may slow down progress on pending wage-hour amendments to the Fair Labor

XUM

Standards Act. Douglas, who was head of the wage-hour subcommittee, has been holding hearings on plans to extend coverage of the act, including a modification of the present exemption of telephone operators' wages at exchanges of less than 750 stations.

While it is expected that the subcommittee staff will go ahead with the hearings, the absence of Douglas will be felt, and this may materially lessen the chances for any final legislation at this session. Douglas has been a driving force on this legislation. It will be noted, however, the wage-hour amendments were *not* among the list of some 28 items of new legislation which the White House said ought to be passed before the Congress quit.

Senate Passes Highway Bill

Senate passage of federal-aid highway legislation has settled the final form of utility reimbursement for facilities relocated. Senate action, taken on May 29, cleared the way for quick conference compromise to resolve differences on other provisions which would send the long-delayed bill to the White House for signature.

The Senate reaffirmed the general acceptance by Congress of the principle of allocating federal funds to utilities which are forced to relocate facilities because of the huge future highway-building program. A precedent is thus established which may serve utilities in good stead in coming years, during this and other expansion programs. Controversy in the Senate centered on other matters. For utilities, the battle over relocation reimbursement was substantially won at an earlier stage of congressional consideration of the road-building proposals.

The Senate accepted an amendment by Senator Lehman (D., N. Y.), which struck out the Senate version of utility reimbursement in favor of the House formula. It will be recalled that the former Senate provision permitted reimbursement to states for 50 per cent of the cost of utility relocations on all federal-aid highway systems, where such relocations are not paid by the states, with a limit of 2 per cent of the total federal funds allocated to the state available for such purposes.

The House plan which the Senate accepted, permits reimbursement to the states, where they make such payments to utilities, in the same proportion as federal funds are expended on the project, provided that such payment to the utility does not violate state law or valid contracts between utilities and the state.

Utilities had approved either approach, though some would have gained more from the original Senate plan, depending on the location of the utility, and the circumstances of the individual case.

REA Makes Telephone Loans in Three States

Telephone companies in Tennessee, Missouri and Oregon the week of May 20 obtained $806,000 in loans from the Rural Electrification Administration to improve and extend telephone service for 1,935 farm families and other rural subscribers. Details of the new loans follow:

Adamsville (Tenn.) Telephone Co. on May 24 was extended an allocation of $72,000, fourth REA loan.

The borrower proposes to use loan funds to serve additional territory in Chester County. The Adamsville company plans to acquire the Enville Telephone Co., now providing magneto service to 77 subscribers over 19 miles of line. The line will be rebuilt and 23 miles of line added. Separate automatic facilities to serve the Enville community will be installed in the borrower's present Milledgeville building. The rehabilitation and expansion will provide improved service for existing subscribers and initial service for 92 unserved rural families.

REA loans to the Adamsville company total $532,000. They will enable the company to furnish automatic service to 984 rural subscribers over 275 miles of line in Chester, Hardin and McNairy counties. All three automatic exchanges are now in operation.

C. D. Dickey is president and manager of the Adamsville company.

*

Stover (Mo.) Telephone Co. on May 25 was extended a loan of $195,000, first loan, to improve and extend service in Benton and Morgan counties.

The borrower is a commercial company which now provides magneto service to 227 rural subscribers over 6 miles of line and furnishes switching service to 231 rural families who own their own lines.

The Stover company proposes to construct an automatic central office at Stover and build 146 miles of line. Three miles of the existing line will be used in the expanded system and the remainder retired. The rehabilitation and expansion will enable the Stover company not only to furnish improved service to the 227 existing subscribers but to offer automatic service to 249 rural families. The new subscribers include 184 families now receiving switching service.

Lyle H. Rath is president and manager of the Stover company.

*

Eastern Oregon Telephone Co., Pilot Rock, on May 25 was also allocated a loan of $539,000, first REA loan, to improve and extend rural service in Morrow and Umatilla counties.

The borrower, a new commercial corporation with no existing telephone properties, plans to use these loan funds to provide service for the first time to 548 families and other residents. As a nucleus, the Eastern Oregon company will acquire the Independent Telephone Co. at Pilot Rock, and the Boardman Telephone Co. These facilities, including 308 miles of line, are serving 742 rural subscribers through automatic central offices at Pilot Rock and Ukiah, and a magneto office at Boardman.

The borrower proposes to retain the existing automatic facilities at Pilot Rock and Ukiah, build an automatic central office at Boardman, and add 54 miles of line. About 230 miles of the existing line will be used in the expanded system, 67 miles rebuilt and the remainder retired.

Walter A. Karnopp is president and manager.

FCC Pay Raise Stymied

White House opposition to federal employes retirement may block Federal Communications Commission salary increases. The administration itself proposed an executive pay raise bill, which would boost FCC commissioners' salaries from $15,000 to $19,000 or more.

While sentiment in Congress is generally in favor of such increases for independent agency officials, the bill has collided in the Senate Post Office and Civil Service Committee with a bill

sponsored by Chairman Johnston (D., S. C.) for increasing federal retirement benefits. Johnston has indicated that he will not do anything for the commissioners' pay raise bill unless his retirement measure is approved by the administration.

So far the administration has opposed the increase in retirement benefits. The salaries of judges and Congressmen were boosted at the last session. But federal regulatory commissioners and executive heads of other agencies had their pay raises deferred to this session. President Eisenhower has given a high priority to the federal pay raise bill.

Government Holds Frequencies Against TV Demands

The federal government recently refused to give over to commercial television any of the broadcasting channels it now holds. Furthermore, it hinted that added channels might be needed for future defense needs. The Office of Defense Mobilization (ODM) reported that national security requirements and the needs of air navigation and air communications precluded the release of any of the very high frequencies now used by the government in the radio spectrum.

The announcement by ODM included a statement by Reuben B. Robertson Jr., Deputy Secretary of Defense, emphasizing the point that the military services were finding it difficult to meet all their requirements within the limited spectrum space available to them. "It is believed," Mr. Robertson said, "that this situation will become more critical as new technology now under development reaches the operational stage."

Arthur S. Flemming, head of ODM, made this announcement. He said that a special interdepartmental committee had studied the problem of available channels since last November. The study, he said, had been made at the request of FCC, which has been pressed by commercial broadcasters for additional television channels.

In announcing the committee's conclusions, Mr. Flemming noted that the FCC had not suggested that the government had spectrum space it did not need, but was exploring all possible solutions to the problem of finding sufficient channels to meet the demands of commercial broadcasters.

The report said that in addition to national security requirements, the programs for guided missiles, radar networks, earth satellites and other defense necessities already had placed, and would continue to place, "an ever-increasing demand for radio frequencies."

"Full national benefit," Mr. Flemming added, "could not be obtained from these vital services without the continued use of frequencies between 50 and 300 megacycles, the area where additional frequencies are now being sought by commercial and private interests."

In addition, the report noted that the world-wide buildup of the nation's international defense facilities in collaboration with friendly countries had intensified the reliance that must be placed for defense purposes on these frequencies.

The report emphasized that the operation of modern weapons systems had become increasingly dependent upon a complex of communications and electronic devices requiring more and more space dispersed throughout the spectrum.

Court Upholds FCC Ownership Rule

The U. S. Supreme Court has upheld the authority of the FCC to fix an arbitrary limit for individual ownership of radio and television stations. In an opinion delivered by Justice Stanley F. Reed, the court ruled that the ceiling does not illegally deny lawful applicants of their right to a hearing. The vote was 7 to 2. Justices Felix Frankfurter and John M. Harlan thought federal courts had no jurisdiction over this particular case, which now goes back to the U. S. Court of Appeals for the District of Columbia for further proceedings.

The ruling, although confined to the television field, also necessarily applies to ceilings on ownership of FM and AM radio stations. The provisions against ownership of more than one station serving the same area were not at issue.

The case was brought to the high court by Storer Broadcasting Co., whose application for a TV station permit in Miami, Fla., was dismissed in 1953 because of new FCC multiple-ownership rules issued at that time. There was no hearing. The rules provided that one person may not have an interest in more than seven AM stations, seven FM stations, and five television stations. Storer and its subsidiaries had already licensed five TV outlets.

The FCC's purpose was to discourage monopolies and to bring new ideas and viewpoints to the broadcasting industry. Multiple-ownership rules of one type or another have been in effect for 15 years.

Storer challenged the new rules in the U. S. court of appeals and won a favorable ruling in February 1955. The company argued successfully that the rules run counter to the part of the Communications Act of 1934 which requires that applicants for broadcasting facilities be afforded a hearing.

Justice Reed said the FCC rules permit an applicant, who has reached the existing limit of stations, to try to convince the commission that its rules should be waived or amended. But even then, he said, a full hearing is not required if the commission does not think it necessary. "We do not think Congress intended the commission to waste time on applications that do not state a valid basis for a hearing," he stated.

The rule-making authority, the opinion added, is "necessary for the orderly conduct of (the commission's) business."

When Storer applied for the Miami outlet, the company or its subsidiaries already had TV stations in Atlanta, Detroit, Toledo, O., Birmingham, Ala., and San Antonio, Tex., as well as seven standard and five AM stations. Later the television rule was modified to permit ownership of two additional stations if they were in the ultra-high-frequency band. Storer subsequently acquired a VHF (very high frequency) station in Miami.

Storer had also objected to the FCC rule that ownership of 1 per cent or more of the voting stock of a corporation be considered equivalent to ownership, operation, or control of a broadcasting station. This complaint may now be aired before the appeals court.

Utility Property Sold in Excess of Both Cost and Value

The Alabama Public Service Commission has approved the sale of local water and gas utility properties by the Alabama Water & Gas Co. to a municipality for a purchase price, both in excess of original cost and replacement value.

Specifically, the commission approved the sale of the local properties and franchises to the town of Alabaster, Ala., for $300,000, as compared with a replacement value, less observed depreciation, of $279,000, and an original cost (including estimated value of donated services by the owners), less depreciation of about $230,000.

The Alabama commission said that it recognized that it should exercise extreme care and judgment before approving the sale of utilities' properties at purchase prices in excess of the

(Please turn to page 62)

XUM

Plant Techniques and Materials

A plant man's ambition is to maintain telephone service at reasonable cost to his company.

By G. P. BARNEY

Part 1

THE TELEPHONE plant man's job is the construction, installation, and upkeep of telephone lines and equipment. His ambition is to maintain good telephone service at reasonable cost to his company. He is naturally interested in new developments that promise a reduction of job costs, lighten his work, and improve the service to telephone subscribers.

It is the purpose of this paper to bring to the attention of fellow plant men, improved methods and materials that have come into the telephone plant maintenance and construction field within recent years.

Exchange Maintenance

One important phase of the plant man's job is maintenance of outside telephone plant. It is a truism that good maintenance produces good telephone service, and all plant men are aware of this fact.

The problem, however, is getting the maintenance work done before it becomes a series of trouble cases that must be handled on an emergency basis. The men are too occupied in installing telephones and shooting trouble, so they feel they have to overlook things like a floating insulator, a slack guy, or tree foilage in open wires.

"That's a minor matter—we can get to it in plenty of time. Let's get on to that order first," is the all too familiar excuse the men make.

Then the first thing they know, the floating insulator has caused the wires to wrap around each other, interrupting the service on this line. The line wires sag below legal height and a farmer comes in with a claim for damages to his harvesting rig from the low wires. Lines to a number of subscribers have become noisy from the growing tree branches contacting the wires, and the subscribers complain of the line hum. The job of replacing the "floater," pulling slack in the guy, or trimming the interfering branches, might have taken only a few minutes. But, because they neglected these "minor matters," the men will have to spend much more time in traveling to and from the trouble locations in order to clear the faults.

The solution for this problem is to establish a program of regular inspection of telephone plant and maintain this program consistently. This program consists of two related activities. One involves the training of exchange workers to inspect telephone plant during their routine assignments and to correct or report any instances of incipient trouble. The other activity involves a periodic over-all inspection of the telephone exchange to detect abnormal plant conditions.

To illustrate the first activity, let us assume that a combinationman is on his way to make a telephone installation. He will inspect the wire leads as he drives by. At one point, he notices that a wood pole bracket is about to come off a pole. Of course, he sees that this condition will not immediately cause trouble, yet he stops his truck and climbs the pole to nail the bracket back in place.

As he continues farther along the road, he comes to a place where a pole is leaning to one side because of a washout. He stops his truck and observes that it will take two men to move the pole away from the washout. He makes out a memorandum on this condition for reporting later to the supervisor.

On his return from the installation assignment, he gives the memorandum to his supervisor. From the information, the supervisor assigns another man with a helper and the necessary tools and materials for moving the pole to another location.

To explain the need for the second activity, in rural areas, the exchange

Mr. Barney is general plant superintendent of the Lincoln (Neb.) Telephone & Telegraph Co. He has served the USITA Plant Committee as director of its Sub-Committee on Pole Lines, Conduit and Wire Plant. He gave this paper at the 1955 USITA Convention plant conference.

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The easy, economical, effective way to increase the capacity of your existing cable is to use Lenkurt Type 45BN Carrier.

Use this carrier system to link exchanges, or to provide new toll channels. Type 45BN Carrier provides up to 24 toll-grade channels on only two pairs within the same cable—large-scale facilities in small space!

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Type 45BN Cable Carrier fits into your present picture, and your future plans, too. It connects to Type 45A open-wire carrier systems, or to Lenkurt Microwave, at carrier frequencies. Now you can have a complete carrier network with a single basic type of equipment; there's no need for cumbersome, expensive "back-to-back" interconnections at voice frequencies!

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Originators of the dial telephone · Pioneers in automatic control

GENERAL SYSTEM INDEPENDENT

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work forces may consist of only one or two men who have to drive many miles over country roads on their daily assignments and yet may cover only part of the exchange area. This results in telephone plant in remote locations being visited only on rare occasions, and plant deterioration in many places may remain undetected until trouble actually results and it is reported.

Such conditions can be detected only by regular periodic inspections of the entire exchange plant. With proper planning, this periodic inspection need take only a few days in the average size exchange. Intervals of one year are recommended for the periodic inspection.

Any selected time for the inspection is satisfactory. It has been found desirable, however, to choose the summer months for this activity. During this time the trees are in full foliage, which facilitates the inspection for effective kill by previous chemical treatment and for proximity of live growths to telephone wires.

It is to be expected that the inspection procedures will vary with the different companies. The important thing is that a competent man be given charge of the inspection. Because of his extensive experience, this will be generally the area or exchange manager, depending on the size of the company. It would be helpful for him to have another man with him to drive his car while he checks the lead along the right of way. Much of the inspection can be made from the car, but, at times, the inspector should stop the car for a closer look, climbing a pole, where necessary. The inspector should write down the maintenance items and their location on a suitable form or pad of paper. Some companies have used a rural plant record map to mark such locations.

On completing the inspection, the manager may revise the inspection sheets, making copies, if necessary, for legibility and clarity of directions for the necessary work.

Since the maintenance work should be done as soon as possible to avoid carrying over incompleted jobs into the next inspection period, and at the same time not interfere with routine work, the following procedure is suggested to assure the manager of complete control of the work assignments.

Using the inspection forms, rural plant record map, and town plat for each exchange under his supervision, the manager prepares duplicate copies of a memorandum form for each maintenance item listed on the inspection forms and assigns a serial number to each memorandum form. On copies of the rural plant record map and the town plat, he enters the serial numbers to locate each maintenance item. He turns the original copies of the memorandum forms and the marked maps over to the local testboard for assigning maintenance work to his local forces, retaining the duplicate copies of the memorandum forms for his reference in checking work progress.

As each combinationman is given a routine trouble or station installation assignment, the testboard personnel checks the marked maps for serial numbers assigned to maintenance items in the area traveled by the combinationman and gives him copies of the memorandum forms covering items in that area. When the man completes a maintenance assignment, he fills out the proper memorandum form to indicate that the work has been done. On his return to the headquarters, he turns in all memorandum forms whether completed or not. The testboard person then erases or crosses out serial numbers of completed jobs on the plant record map or town plat and transmits the completed forms to the manager for checking against his copies on file. By this method, the manager is made aware of any maintenance assignments that have not been handled and can investigate the reasons for their delay.

Tree and Brush Eradication

The maintenance of open wire and drop clearances from trees and brush used to be a difficult problem in areas lush with plant growths. Time was when construction crews were practically engaged full time in trimming trees and cutting brush from early fall to spring and in many cases the job could not be completed. Costs were high and were becoming higher as labor charges went up.

When brush eradication by chemical sprays came on the scene several years ago, telephone organizations were quick to recognize their value. Initially, foliage spraying was employed. This was soon supplemented or replaced by basal spraying with powerful hormone compounds (2, 4-D and 2, 4, 5-T). Results have been spectacular with a 90 per cent kill of plant growths along the right of way and an estimated reduc-

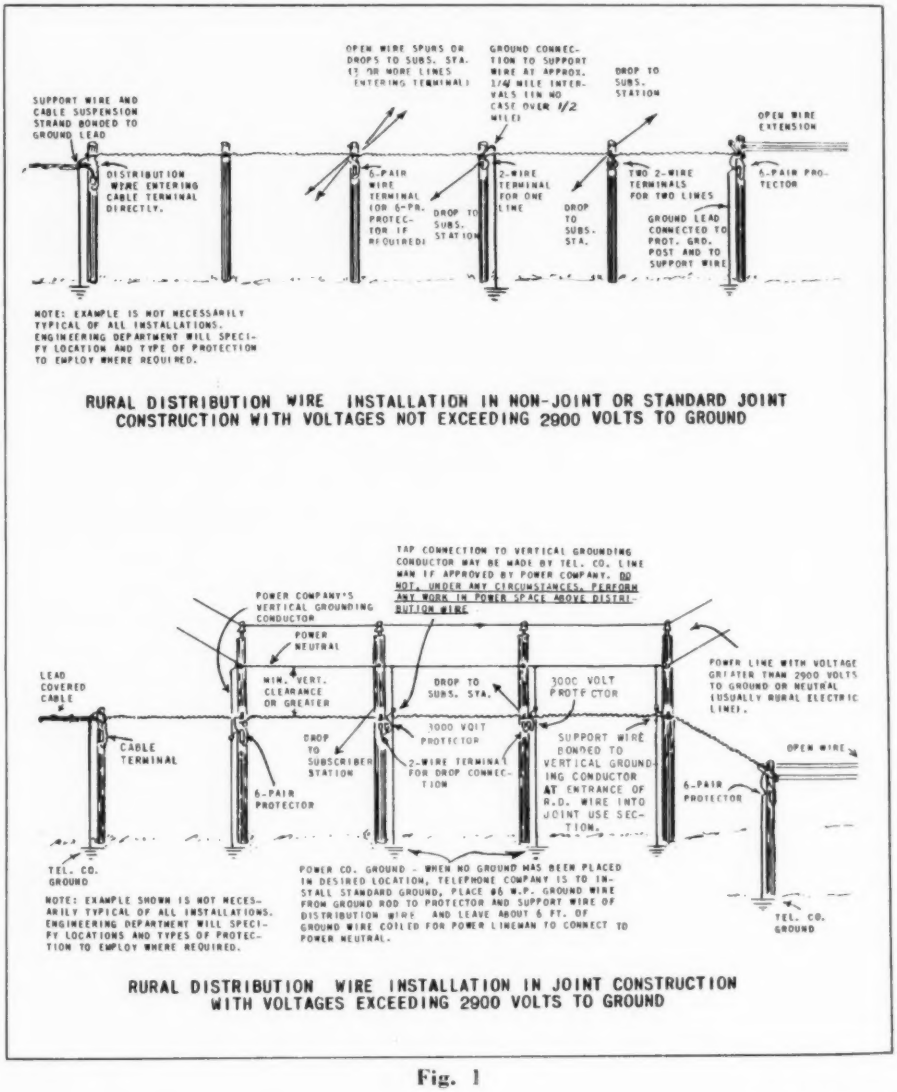
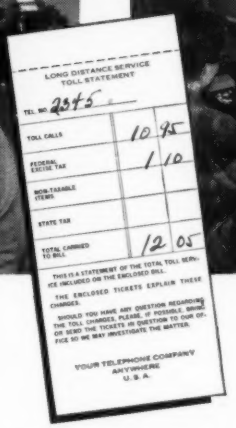

SUPPORT WIRE AND CABLE SUSPENSION STRAND BONDED TO GROUND LEAD
DISTRIBUTION WIRE ENTERING CABLE TERMINAL DIRECTLY.
OPEN WIRE SPURS OR DROPS TO SUBS. STA. (3 OR MORE LINES ENTERING TERMINAL)
6-PAIR WIRE TERMINAL (OR 6-PR. PROTECTOR IF REQUIRED)
DROP TO SUBS. STATION
GROUND CONNECTION TO SUPPORT WIRE AT APPROX. 1/4 MILE INTERVALS (IN NO CASE OVER 1/2 MILE)
2-WIRE TERMINAL FOR ONE LINE
DROP TO SUBS. STA.
DROP TO SUBS. STATION
TWO 2-WIRE TERMINALS FOR TWO LINES
GROUND LEAD CONNECTED TO PROT. GRD. POST AND TO SUPPORT WIRE
OPEN WIRE EXTENSION
6-PAIR PROTECTOR
NOTE: EXAMPLE IS NOT NECESSARILY TYPICAL OF ALL INSTALLATIONS. ENGINEERING DEPARTMENT WILL SPECIFY LOCATION AND TYPE OF PROTECTION TO EMPLOY WHERE REQUIRED.
RURAL DISTRIBUTION WIRE INSTALLATION IN NON-JOINT OR STANDARD JOINT CONSTRUCTION WITH VOLTAGES NOT EXCEEDING 2900 VOLTS TO GROUND
TAP CONNECTION TO VERTICAL GROUNDING CONDUCTOR MAY BE MADE BY TEL. CO. LINE MAN IF APPROVED BY POWER COMPANY. DO NOT, UNDER ANY CIRCUMSTANCES, PERFORM ANY WORK IN POWER SPACE ABOVE DISTRIBUTION WIRE
POWER COMPANY'S VERTICAL GROUNDING CONDUCTOR
POWER NEUTRAL
LEAD COVERED CABLE
MIN. VERT. CLEARANCE OR GREATER
DROP TO SUBS. STA.
3000 VOLT PROTECTOR
POWER LINE WITH VOLTAGE GREATER THAN 2900 VOLTS TO GROUND OR NEUTRAL (USUALLY RURAL ELECTRIC LINE).
CABLE TERMINAL
DROP TO SUBSCRIBER STATION
3000 VOLT PROTECTOR
2-WIRE TERMINAL FOR DROP CONNECTION
SUPPORT WIRE BONDED TO VERTICAL GROUNDING CONDUCTOR AT ENTRANCE OF R.D. WIRE INTO JOINT USE SECTION.
OPEN WIRE
6-PAIR PROTECTOR
6-PAIR PROTECTOR
TEL. CO. GROUND
POWER CO. GROUND - WHEN NO GROUND HAS BEEN PLACED IN DESIRED LOCATION, TELEPHONE COMPANY IS TO INSTALL STANDARD GROUND, PLACE #6 W.P. GROUND WIRE FROM GROUND ROD TO PROTECTOR AND SUPPORT WIRE OF DISTRIBUTION WIRE AND LEAVE ABOUT 6 FT. OF GROUND WIRE COILED FOR POWER LINEMAN TO CONNECT TO POWER NEUTRAL.
TEL. CO. GROUND
NOTE: EXAMPLE SHOWN IS NOT NECESSARILY TYPICAL OF ALL INSTALLATIONS. ENGINEERING DEPARTMENT WILL SPECIFY LOCATIONS AND TYPES OF PROTECTION TO EMPLOY WHERE REQUIRED.
RURAL DISTRIBUTION WIRE INSTALLATION IN JOINT CONSTRUCTION WITH VOLTAGES EXCEEDING 2900 VOLTS TO GROUND

Fig. 1

Ends posting 115,000 toll tickets per year ...cuts billing costs 50%

Mr. and Mrs. William Saltmarsh, who manage Lakedale Telephone Company, Annandale, Minnesota, show how a low-cost Recordak Junior Microfilmer quickly paid for itself.



Recordak Junior was the answer to rising clerical costs . . . an ever-increasing number of calls. No need to list each charge on the subscriber's bill. This tedious job is eliminated by taking pictures of the toll tickets, which are then sent out with an abbreviated bill. *Result:* Billing costs are reduced at least 50%. Subscriber questions are more than cut in half. *And no writing errors*—the film records are photographically accurate and complete; are filed at the finger tips—checked whenever needed on reading screen of Recordak Junior Microfilmer.

Bills look like this —only a few figures whether a subscriber makes one toll call or a hundred. Bill and 40 tickets require only three cents postage.

Anyone in the office can "double" as the Recordak operator—just press a button on this dependable microfilmer and you have a picture. Film costs are surprisingly low—under $4 per month.

The savings at Lakedale Telephone Company—with 2,250 subscribers—are typical of those enjoyed by more than 200 independent companies.

You should get the whole story soon—learn how you can rent a Recordak Junior for as little as $17.50 per month; buy one for as little as $550.

MAIL COUPON TODAY

RECORDAK CORPORATION (*Subsidiary of Eastman Kodak Company*)
415 Madison Avenue, New York 17, N. Y.
Gentlemen: Please send full story on Recordak Toll Billing System.

Name_____ Position_____

Company_____

Street_____

City_____ State_____

RECORDAK

(*Subsidiary of Eastman Kodak Company*)

originator of modern microfilming—and its application to telephone routines

"Recordak" is a trademark
Prices quoted are subject to change without notice

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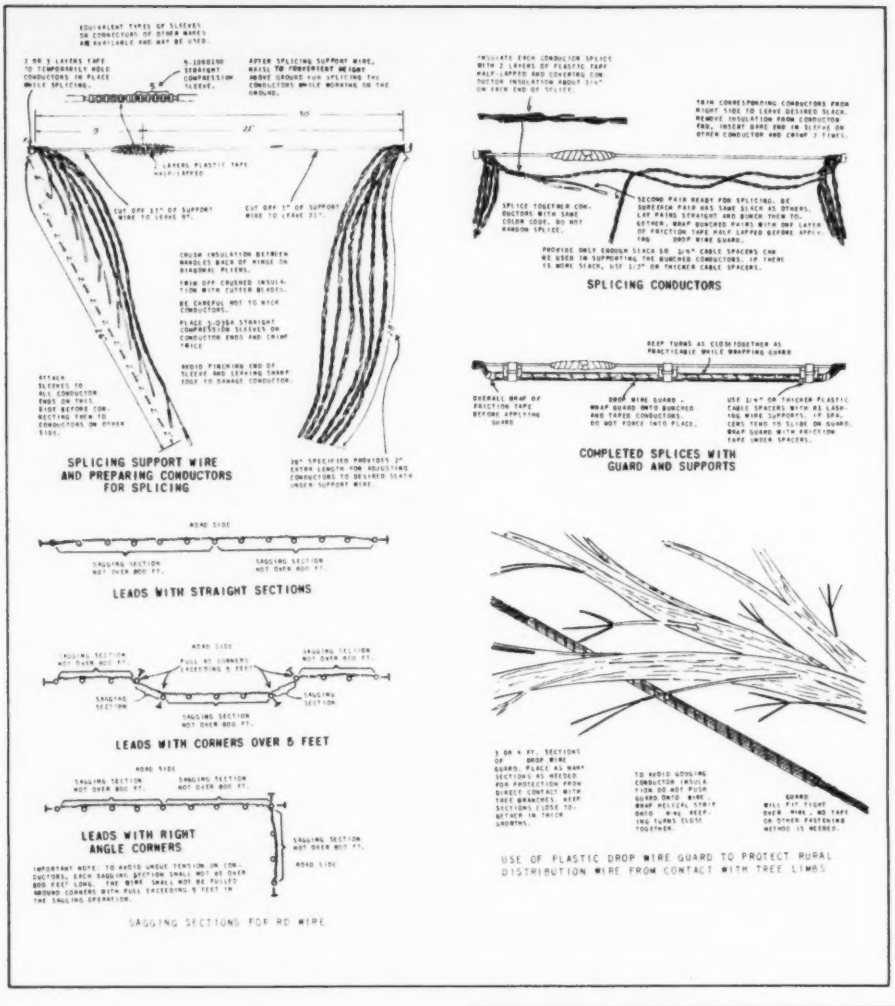

SPLICING SUPPORT WIRE AND PREPARING CONDUCTORS FOR SPLICING
SPLICING CONDUCTORS
COMPLETED SPLICES WITH GUARD AND SUPPORTS
LEADS WITH STRAIGHT SECTIONS
LEADS WITH CORNERS OVER 5 FEET
LEADS WITH RIGHT ANGLE CORNERS
SAGGING SECTIONS FOR RD WIRE
USE OF PLASTIC DROP WIRE GUARD TO PROTECT RURAL DISTRIBUTION WIRE FROM CONTACT WITH TREE LIMBS

← Fig. 2

right of ways as an aid to wild life conservation.

Rural Distribution Wire

Rural distribution wire, (RD) or B rural wire as it is also called, is designed to meet the need of the telephone industry for a simple and relatively inexpensive wire facility for the following purposes:

(1) To extend telephone circuits into sparsely settled areas, where regular sheathed cable would be too expensive for serving the relatively few subscribers there.

(2) As a relief facility in smaller towns to release pairs for use in rural areas.

(3) As a distribution facility in suburban developments to defer the placing of regular cable. (In such situations, it has been possible to use as many as three RD wires at the feed point and diminish to two and finally one RD wire towards the end of the lead.)

(4) In situations where the addition of open wire circuits would require replacement of existing poles due to their inadequate height or strength for the additional circuits.

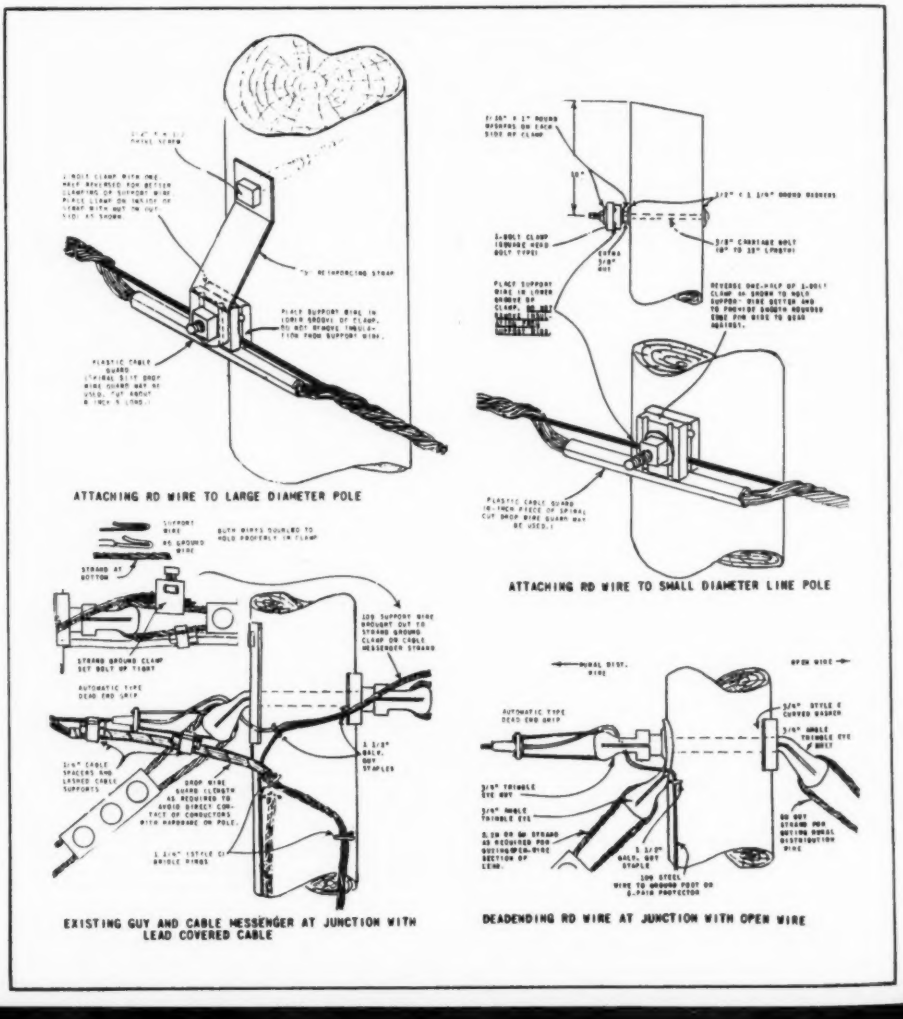
(5) In situations of severe interference from trees and brush along the right-of-way, rural distribution wire can be employed to replace the portion of the open wire lead through the interference area. (If needed, drop wire

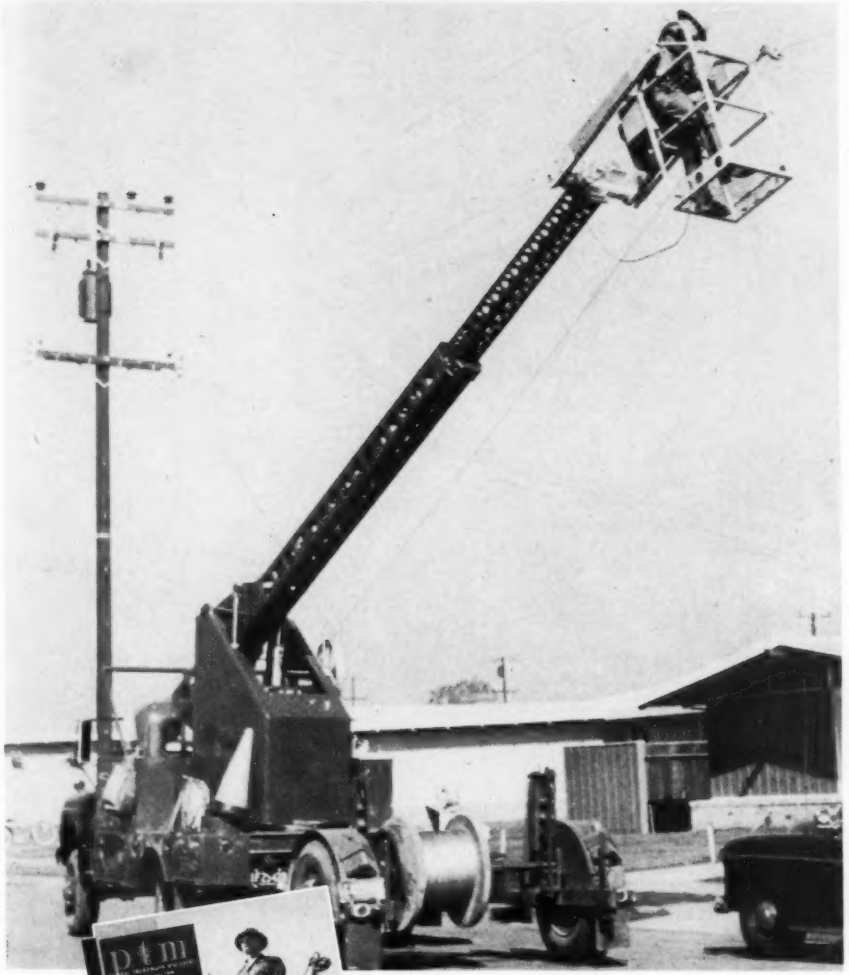
tion of 80 per cent in tree trimming or brush cutting requirements.

So far, one of the most effective spray materials has been a mixture of two pounds each of 2, 4-D and 2, 4, 5-T in one gallon of glycol. This formula is mixed with No. 2 fuel oil at the rate of one gallon of the formula to 24 gallons of oil. Spraying pressures should be maintained at the lowest possible value, 20 to 40 p.s.i. It is important that mixture be continuously agitated through bypassing part of the liquid from the pump into the tank.

It is safe to say that over-all costs of right-of-way maintenance have been substantially reduced as the result of the use of chemical sprays to eradicate trees and brush. It is expected that costs will continue to go down with the passing years as more and more right of ways are cleared. Tree trimming operations will be reduced to an occasional chore to take care of situations where the subscriber will not permit complete eradication of trees and hedges along the right-of-way and where shade trees are maintained as in town areas. Regrowths will be treated through hand spraying by combination-man. Grass and low plant growths like plum and sumac will be left on rural

Fig. 3 →


ATTACHING RD WIRE TO LARGE DIAMETER POLE
ATTACHING RD WIRE TO SMALL DIAMETER LINE POLE
EXISTING GUY AND CABLE MESSENGER AT JUNCTION WITH LEAD COVERED CABLE
DEADENDING RD WIRE AT JUNCTION WITH OPEN WIRE



"as versatile as a one-man mambo band..."

says *Pacific Telephone Magazine* of the **Telsta Electric Lift**

Pacific Telephone and Telegraph Company construction crews place strand quickly and safely with the Telsta Electric Lift.

"As versatile as a one-man mambo band . . . helping our construction crews bring telephone service to new customers faster, helping them do the job with less sweat and strain and do it in greater safety, too," is how a recent issue of PACIFIC TELEPHONE MAGAZINE *describes the new Telsta Electric Lift to 89,000 employees of the Pacific Telephone and Telegraph Company.*

Since its introduction last year the Telsta Electric Lift has met the exacting requirements of The Pacific Telephone and Telegraph Company in becoming an important member of the construction team that provides telephone service to the rapidly increasing populace of Northern California.

Simplicity best describes the Telsta Electric Lift. It is electrically powered by its own generator. A unique single lever control allows the operator in the basket to maneuver in three directions simultaneously. The basket travels in the direction that the control is moved permitting smooth, direct positioning. The boom is telescopic. Boom rotation in a complete circle is unrestricted in either direction. The basket lowers to the ground or provides a working height of 40 feet. For truck mounting the Telsta Electric Lift is complete with torsion bars providing stability without outriggers or spring locks.

As *Pacific Telephone Magazine* reports, "It's hard to weigh advantages like plus safety factors and muscle saving. But in time gained these new lifts are already well on the way toward paying for themselves."

For further information on the Telsta Electric Lift write our Industrial Information Department.

TELSTA CORPORATION

2900 SPRING STREET, REDWOOD CITY, CALIFORNIA

MANUFACTURER OF THE TELSTA ELECTRIC LIFT

XUM

guards can be used to protect parts of the RD wire in direct contact with tree limbs.)

The RD wire is available with two kinds of conductor insulation, polyethylene, or polyvinyl chloride over polyethylene. The latter apparently is gaining favor principally because the polyvinyl chloride jacket can be color coded for conductor identification. This plastic covering is also somewhat more resistant to abrasion than polyethylene. The support wire is insulated with black polyethylene to minimize lightning breakdown to the conductors. According to manufacturers, the insulation breakdown voltage between the conductors and support wire is 30,000 volts.

The RD wire can now be obtained in a variety of sizes ranging from two-pair through three, six, 11, and 16-pair. The six-pair is the most commonly used size. The two and three-pair RD wires are considered ideal for high voltage joint construction, due to savings by the elimination of special transposition brackets on every other pole as required in open-wire joint use. The 11-pair and 16-pair RD wires are favored by smaller companies for more extensive distribution.

In the heavy loading district, general data on the supporting structure for six-pair RD wire is recommended as follows:

Pole size—Class 7.

Pole length—As required for minimum clearance plus 1 foot additional clearance.

Pole spacings, normal — 225 feet, maximum — 250 feet, minimum — 180 feet.

Poles per mile—23 to 24 average.

Minimum guy strand size—6000-pound (2200-pound for L/H ratio of 1 or more).

Anchors—8-inch expanding type.

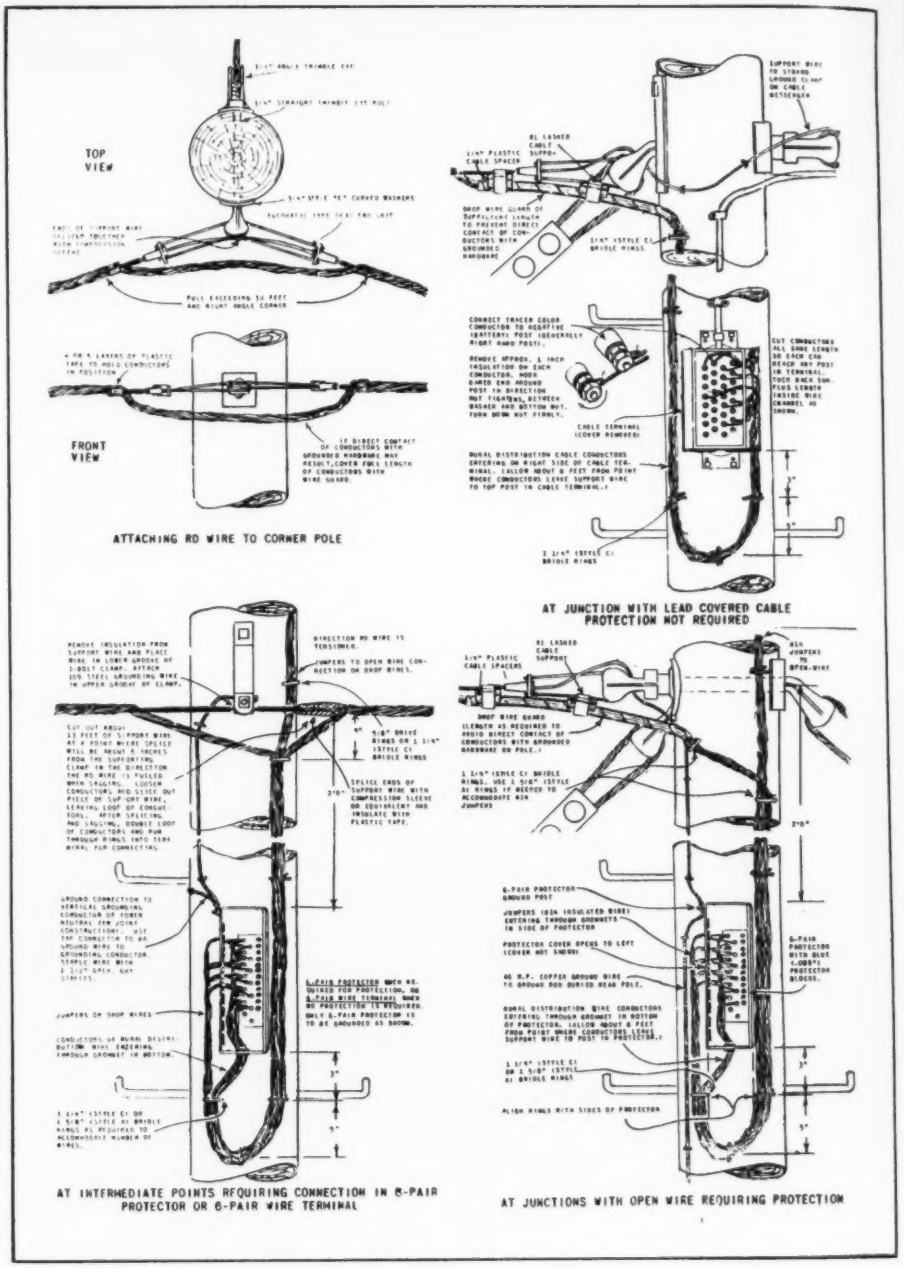

TOP VIEW
FRONT VIEW
ATTACHING RD WIRE TO CORNER POLE
AT JUNCTION WITH LEAD COVERED CABLE PROTECTION NOT REQUIRED
AT INTERMEDIATE POINTS REQUIRING CONNECTION IN 6-PAIR PROTECTOR OR 6-PAIR WIRE TERMINAL
AT JUNCTIONS WITH OPEN WIRE REQUIRING PROTECTION

Fig. 4

Where the lead is in joint construction or is in existing lead with poles in place, the same pole spacings will be employed. Spacings should not exceed 250 feet in any one span for the heavy loading district.

Rural distribution wire is exposed to the same hazards of lightning and power contacts as open wire and requires corresponding protective measures. At the same time, the support wire requires effective grounding as additional protection for the circuits carried in the distribution wire. The recommended procedures are generally as follows:

The support wire should be grounded at approximate intervals of one quarter mile; in no case over one half mile. Ground may be obtained by connecting to same ground lead as 3,000-volt or six-pair protector, or by bonding to suspension strand of lead covered (or equivalent metal sheathed cable) or vertical grounding conductor from power multi-grounded neutral wire on jointly used pole. If no ground connection is available within one half mile of the nearest ground point, a ground rod should be installed and ground wire run to the connection with the support wire. (NOTE: When distribution wire is run on same poles with lead covered cable, bond support wire to strand at ends of distribution wire run and at about one quarter mile intervals.)

In non-joint or standard joint construction (power voltages less than 2,900 volts to ground or neutral) where distribution wire connects to lead covered cable and length of distribution wire exceeds one half mile or lightning exposure is severe on shorter runs, place six-pair protector at junction with lead covered cable. (NOTE: Whether or not protection is needed, bond support wire to suspension strand, and if six-pair protector is required, place ground for protector and bond support wire and suspension strand to protector ground post.)

At junctions of distribution wire with open wire and any or all open-wire pairs exceeding one half mile in length, place six-pair protector at junction with open wire. Install ground for protector and bond support wire to protector ground post.

At intermediate points in the distribution wire where connections are made for more than two drops, or open wire spurs, place six-pair wire ter-

(Please turn to page 56)

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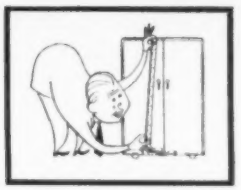
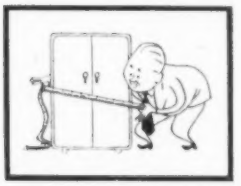
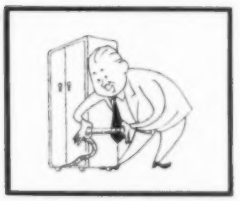


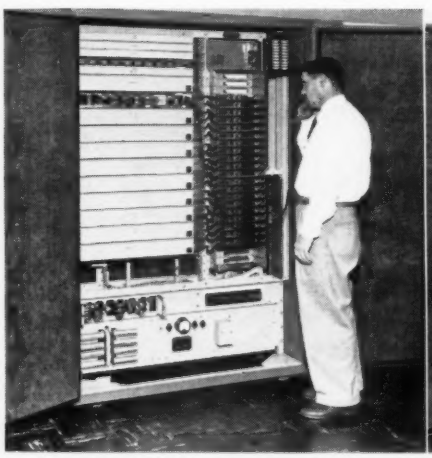
It's only this high (6'4")



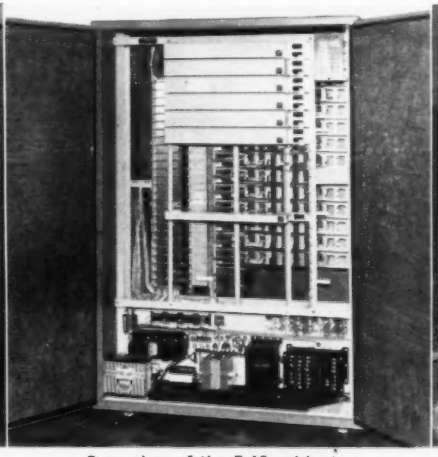
It's only this wide (4'1")



It's only this deep (2')



Front interior of cabinet, with a test under way. Note the thick Fiberglas acoustical insulation on the doors and sides . . . it's quiet!



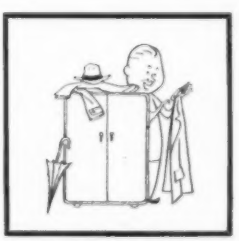
Rear view of the F-40 cabinet shows power supply in base with stand-by battery. Completely self-contained.

Cordless turret approximates the size of a modern typewriter. Furnished in office gray with attractive color-code keys. Attendant's telephone furnished in matching gray with or without standard operator's headset.

The F-40 cabinet, with its capacity of up to 40 lines and 10 trunks, needs only 8 square feet of floor space. It is installed simply by connecting telephone cable leads and plugging the power supply into a standard 110-volt AC outlet.

The attendant's cabinet, no bigger than a typewriter, uses keys for answering and completing calls. The attendant's phone is matching gray. All other stations can be equipped with standard instruments.

For selling aids and further details on the revenue-boosting F-40, contact your nearest Stromberg-Carlson office.



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XUM

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITOR

WE HAVE A LETTER from Warner T. Smith, assistant chief of the telephone engineering division of the Rural Electrification Administration, with reference to an item that appeared on this page in the April 28, 1956 issue, which mentioned the use of plastic pipe in water systems and its effects when used for electrical grounding. Mr. Smith's letter is quoted in part as follows:

"We have been concerned about the increasing use of plastic pipe and its effect on grounding procedures. We proposed a revision to the National Electrical Code which would recognize this problem, but so far we have not received sufficient support for our proposed revision to warrant submitting it officially to the National Fire Protection Association.

"It is our contention that safety of the telephone user and prevention of fires at the subscriber's premises are the most important reasons for grounding telephone station protectors.

"Protection of telephone equipment and the provision of adequate ringing and signalling grounds are of secondary importance.

"We further contend that common grounding of all wiring and metallic piping systems is the most effective way of protecting telephone users' and subscribers' premises.

"By 'common grounding' we mean the interconnection of the ground leads or ground electrodes of all wiring systems with each other, and with all metallic piping systems that serve the premises. Common grounding eliminates abnormal potential differences between the various wiring and piping systems within the premises.

"Most plumbing within a residence is still metallic, even though plastic pipe may be used just outside the foundation wall to the well or main.

"Metallic piping within a residence is subject to frequent direct contact by persons. A person in contact with a metal pipe may be subject to severe shock if lightning or a fault condition occurred on either the power system or the telephone system and caused a large enough difference in potential between the pipe and the wire system to cause arcing.

"Inter-connection of pipe systems and wiring system grounds prevents large differences of potential and and thereby prevents dangerous arcing.

"We have been 'crusading' for the interconnection of telephone and power grounds, and for the maximum practicable utilization of metallic piping system grounds for quite some time.

"We are submitting our proposed revisions of the National Electrical Code to the United States Independent Telephone Association in an effort to gain its support for our proposals. If we receive USITA's support, we will officially submit the proposal to the NFPA and try to get them incorporated into the next revision of the code."

We would be pleased to have our readers' reaction to this proposal.

•

The Associated Press reports that a workman of the telephone company emerging from a manhole in Andover, Mass., was struck by lightning. He was merely shaken up, but the bolt somersaulted him some 30 feet down the street. It seems unlikely that this was what the foreman had in mind that morning when he sent the men out with the remark, "All right, boys, let's roll."

This is also in line with a true happening in a Signal Corps outfit during the late war. A gang was waiting around for the medic to give them one of the prescribed shots in the arm. One chap was named Art Rohling. The medic finally came out and shouted, "All right, men, let's get rolling." Art Rohling jumped up, rolled up his sleeve and said, "Yes sir, I am ready."

•

We had an interesting discussion recently with some engineers who have been working on a communication project in the arctic regions. Due to the perpetual snow and ice in this locality, the cable could not be installed underground nor strung aerially on poles. The problem was finally solved by placing a cushion of sand several inches thick on the ice, laying the wire armored cable on it and then covering with a row of sand bags. It is claimed that this arrangement provided ample protection and that trucks could be driven over the cable without causing the slightest damage.

•

The following is the new standard United States military pronunciation of words in the phonetic alphabet:

Letter	Word	Pronunciation
A	ALFA	*AL* FAH
B	BRAVO	*BRAH VOH*
C	CHARLIE	*CHAR* LEE
D	DELTA	*DELL* TAH
E	ECHO	*ECK* OH
F	FOXTROT	*FOKS* TROT
G	GOLF	GOLF
H	HOTEL	HOH *TELL*
I	INDIA	*IN* DEE AH
J	JULIETT	*JEW* LEE *ETT*
K	KILO	*KEY* LOH
L	LIMA	*LEE* MAH
M	MIKE	MIKE
N	NOVEMBER	NO *VEM* BER
O	OSCAR	*OSS* CAH
P	PAPA	PAH *PAH*
Q	QUEBEC	KEH *BECK*
R	ROMEO	*ROW* ME OH
S	SIERRA	*SEE* AIR RAH
T	TANGO	*TANG* GO
U	UNIFORM	*YOU* NEE FORM
V	VICTOR	*VIK* TAH
W	WHISKEY	*WISS* KEY
X	XRAY	*ECKS* RAY
Y	YANKEE	*YANG* KEY
Z	ZULU	*ZOO* LOO

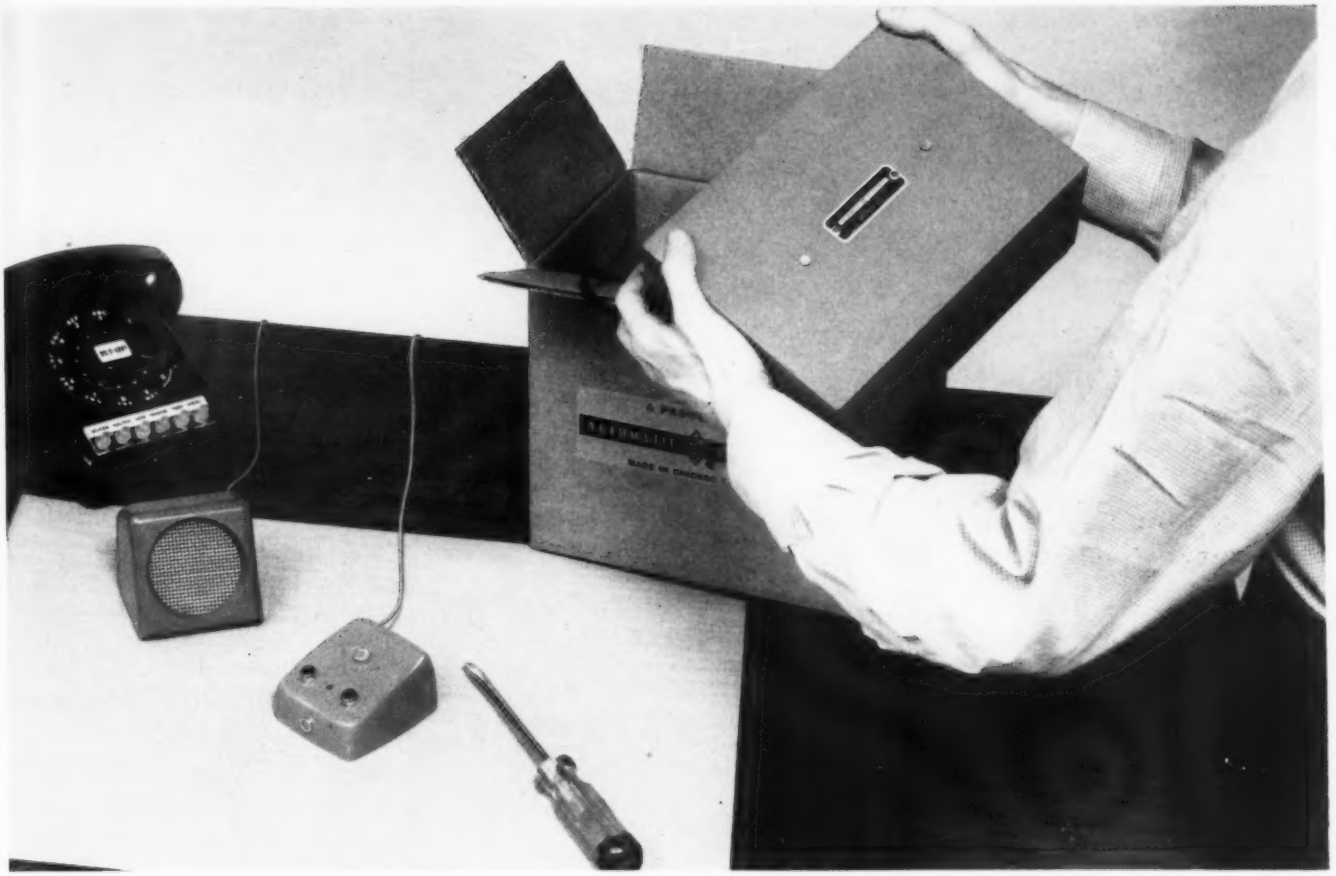
The above phonetic alphabet can be used to advantage when transmitting word perfect messages by telephone. The word "Whiskey" for "W" has caused some comment, but to date, it has done a good job.

•

The Signal Corps Plant Engineering Agency that was commanded by Colonel Will V. Parker during the last war has recently had a name change. It is now the Army Signal Communications Engineering Agency. The present commanding officer is Col. Roy T. Bucy.

•

We recently thoroughly enjoyed a lecture titled: "Exploration of Outer Space With an Earth Satellite" by Dr.



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XUM

John P. Hagen, director of "Project Vanguard," which was given before the Armed Forces Communications & Electronics Association in Washington, D. C.

A three stage rocket has been designed to launch the satellite from Patrick Air Force Base, Florida. This rocket is 72 feet long, 45 inches in diameter and weighs about 11 tons. The actual satellite is only 20 inches in diameter and weighs about 21 pounds.

If the satellite attains a height of 300 miles, as it is now expected to do, it should remain in its orbit for about one year. If, however, it only reaches a height of 200 miles, it will remain in place only about 15 days and at 100 miles, only about one hour.

The question is frequently asked, "Will I be able to see the satellite with the naked eye?" This is impossible for its actual size can be compared to a golf ball dropped from a jet plane at an altitude of 60,000 feet. It can probably best be seen with suitable optical instruments, at one hour before and one hour after sunset. At these times, the observer will be in the shadows and the satellite in the sunlight. The satellite will first be located by radio and then studied through optical instruments.

Scientists believe that the satellite will remain in its orbit for a sufficient length of time to make a series of scientific measurements. Observations made by radio astronomy can penetrate beyond the earth's atmosphere to heretofore unexplored areas.

Telemetering in the satellite will send data back to ground observer stations that should prove invaluable to our scientists in their studies of outer space. These data are coded and would prove of value only to the scientists for whom intended.

•

We enjoyed a talk in Washington recently with H. D. Hurlbut, now retired from the Kellogg company. Mr. Hurlbut is presently with the Utility Service Co., Inc., of Racine, Wis. This company manufactures and sells the telephone booth mast that makes it so easy to run overhead power and telephone lines to outdoor type booths.

We also had the pleasure of a visit from H. T. McCaig, sales manager for the Lorain Products Corp. Mack gave us a wealth of information on the latest developments of power equipment for the communications industry.

•

Approximately 15,730 persons were killed in weekend traffic accidents last year.

Plant Man's QUIZ

BY RAY BLAIN, TECHNICAL EDITOR

Q. We'd like to know whether it is considered desirable to make use of carrier equipment over plastic-insulated and jacketed type telephone cable?

A. We are advised by good authority that when cable pairs are insulated with polyethylene, they prove especially desirable as a base facility for carrier channels.

This type of cable is less liable to interruption of service than paper-insulated conductors and it also has somewhat lower attenuation and cross-talk at the higher carrier frequencies.

•

Q. Would you please tell us what pole spacing should be used for a line engineered to support a rural distribution cable in a heavy-loading area?

A. A normal pole spacing of about 225 feet is generally recommended. The maximum pole spacing may be about 250 feet.

Closer spacing may be necessary in some spans due to terrain conditions or to obtain proper ground clearance.

•

Q. Will the use of pre-spun cable prove desirable for use by a small operating company?

A. We seriously doubt that it would. In the first place, the equipment required to successfully handle this type of construction is rather expensive.

Then, too, in order to make this equipment pay dividends, long lengths of cable must be installed on lines that are comparatively free of trees and other obstructions.

•

Q. What is the shortest and the longest distance over which a point-to-point microwave system may be used economically? What is the greatest number of telephone channels that may be satisfactorily used over one system?

A. One type of microwave system now on the market claims to provide a reliable transmission medium for large or small groups of high quality telephone channels. Distances as short as 10 to 15 miles, it is claimed, can be spanned economically. With repeaters, over-all system lengths can be as great as 600 miles.

Up to 350 voice channels and a service channel can be transmitted and received over a single parabolic antenna.

This system may be economically installed initially with only a small number of channels and then expanded as traffic conditions require.

•

Q. Will there be any objection to the grounding of a telephone station protector to an underground gas pipe system?

A. Ordinarily, there will not be any objection to grounding to an extensive underground gas system if the connection is made between the meter and the main line.

•

Q. What is the greatest length of rural distribution cable that may be used and maintained with satisfactory transmission?

A. This will depend to a great extent on the general over-all condition of your plant and the connecting facilities.

One authority states that about 9½ miles with loading and about 3½ miles without loading is the maximum that generally may be satisfactorily used. These limits will hold the over-all transmission of the cable to about 3 db which compares favorably to an equivalent length of 19 gauge conventional type cable.

•

Q. In the construction of outside telephone plant, is it necessary in all cases to observe the rules of the National Electrical Safety Code?

A. Observance of these rules is required by law in several states. The regulatory bodies in other states require that these rules be observed. Still other states provide their own rules covering all telephone construction.

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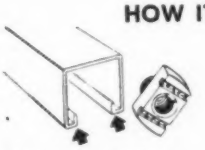
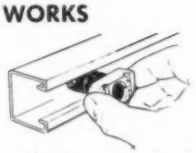
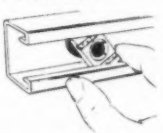


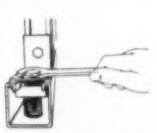
Inturned channel edges fit grooves of UNISTRUT nut.



Nut is easy to insert, spring holds it in place.



Nut inserted anywhere along channel slot.



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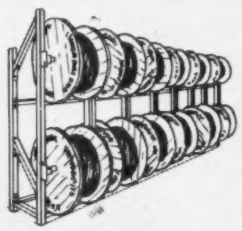
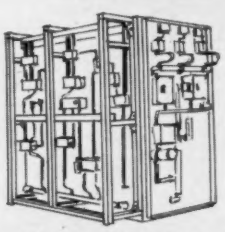


CABLE REEL RACKS



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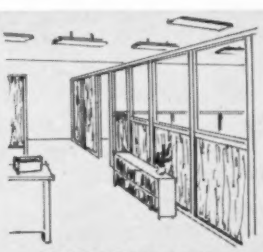
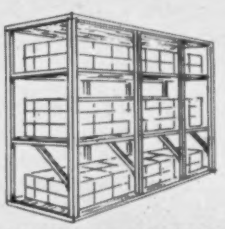


OFFICE PARTITIONS



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XUM

THE Operator's Corner

By MAYME WORKMAN — TRAFFIC EDITOR

A TELEPHONE operator must possess many virtues to be successful in her chosen field. Among these virtues is self-control. When a customer is unfair in his accusation, impatient, rude, unreasonable in his demands, as customers are occasionally, the self-controlled operator is able to cope with the situation without becoming unduly disturbed.

The operator who is cool and collected, who is master of her countenance, her voice, her actions, no matter how trying a situation may be, has a distinct advantage during trying circumstances.

For want of self-control many people are engaged all their lives in fighting with difficulties of their own making, and rendering success impossible by their own cross-grained ungentleness; whilst others, much less gifted, make their way and achieve success by simple patience, equanimity, and self-control.

According to an old proverb, "He is a fool who cannot be angry; but he is a wise man who will not."

Tolerance is closely associated with self-control. Being able to see the other person's point of view, placing yourself in his or her position, making allowance for shortcomings, realizing we have them, too, makes life more pleasant on and off the job.

Tolerance is the *bon enfant* of life, the consideration of others, the brother of man. Tolerance teaches us to fraternize, to sympathize, to do as we would be done by. It is an evidence of the very best intentions.

A tolerant person will tolerate something rather than make a fuss; put up with an inconvenience rather than complain; endure something that will not last forever, bear patiently, suffer magnanimously.

In our daily lives, as well as on the job, we have many opportunities to practice tolerance. At breakfast this morning, our favorite waitress brought me a cup of steaming hot coffee as soon as we were seated, according to her regular Sunday morning practice. On this particular morning I had decided to dispense with coffee and order a glass of milk. Nellie, our waitress, did not know what was in my mind and, rather than cause her any additional work, as a convention was in progress at the hotel and all of the waitresses were very busy, I decided to drink the cup of coffee. Later I told Nellie I had decided to eliminate coffee for a while and in the future she could bring me a glass of milk. Busy as she was, she offered to bring me a glass of milk, but I told her in a kindly way that would not be necessary as one cup of coffee would not cause any ill effects.

Goethe has stated, "Tolerance comes with age; I see no fault committed that I myself could not have committed at some time or other," and no doubt I, too, have reached an age when tolerance comes easily.

Self-control is very essential in supervising the work of others and in dealing with customers referred to you who have encountered difficulties. Chief operators and supervisory personnel are expected to have even greater self-control due to the nature of their service, and their years of experience in the telephone industry.

To merit the respect of others, we cannot afford to fly off the handle, to indulge in impatience or irritability when things do not go to our liking. If an operator loses her self-control, momentarily, she needs her supervisor's calm assistance to overcome the difficulty. In order to be helpful to operators under trying circumstances, a supervisor must practice self-control and tolerance.

To remain calm under trying circumstances, free from agitation, internal or external, is a valuable asset in any station in life, particularly in a telephone exchange where operators and supervisors come in contact with people in all walks of life. An unruffled temper, despite difficulties encountered, overcomes all obstacles. A phlegmatic temperament makes all difficulties seem lighter and more solvable —truly a trait worth cultivating.

Traffic Questions

(1) What is the operator's principal medium for expressing meaning, personality, and attitude?

(2) What are operating phrases?

(3) Should phrases used by an operator be formal?

(4) When should the word "Please" be used?

(5) When should the operator say, "Thank you?"

Answers are presented on page 57.

Customer Aids Service Assistant During Tornado

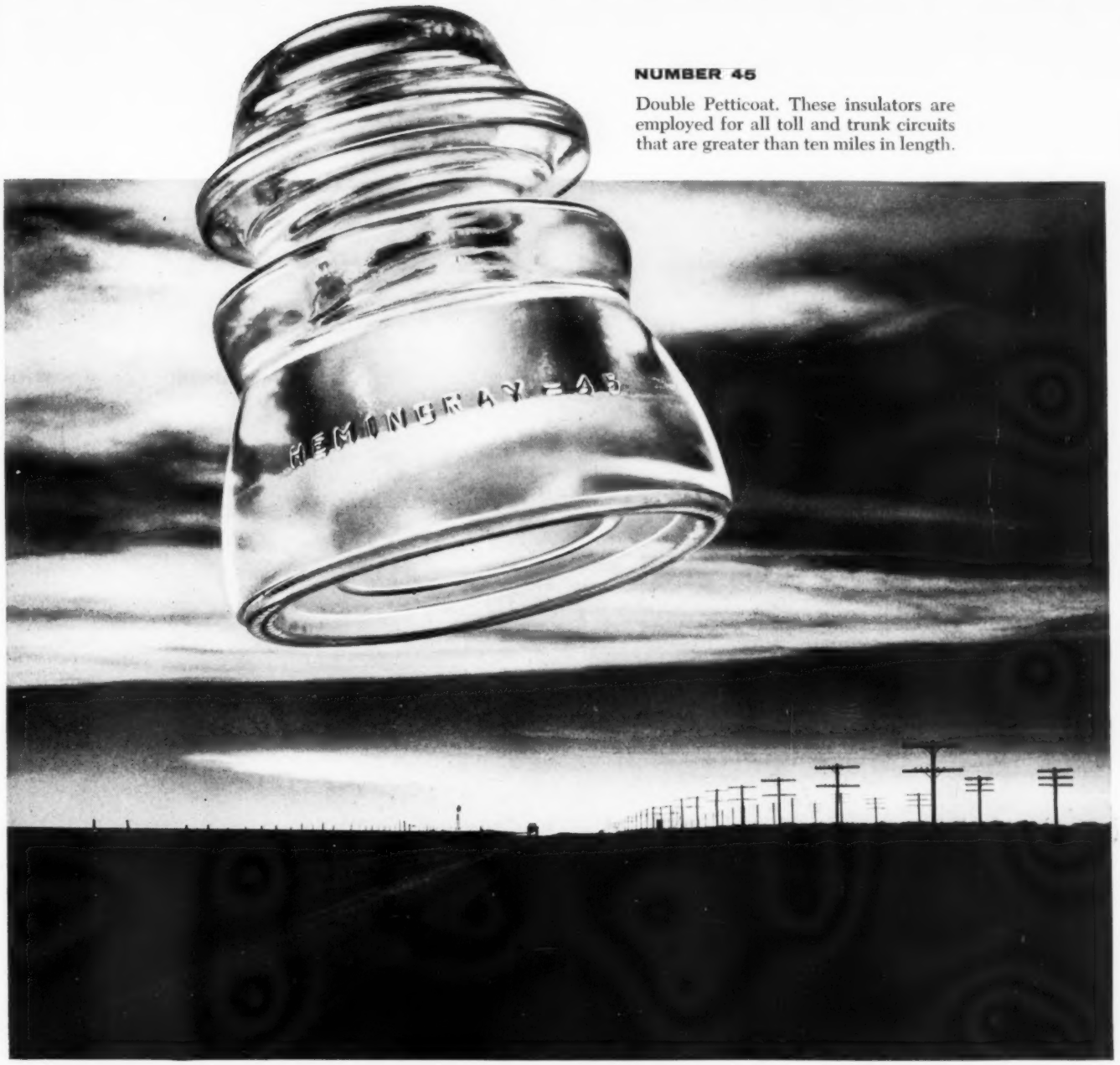
Mrs. Alice Summers, Ohio Bell Telephone Co. service assistant in Cleveland's main district, was on duty when a tornado struck recently. Aware that her mother's home was in the damaged area, Mrs. Summers tried to telephone her elderly mother without success.

In placing a long distance call with Mrs. Summers, a customer discussed the damage to the Rocky River area. Mrs. Summers mentioned her concern for her mother, whose home was located in the same area. The subscriber stated he was about 3 miles from her home, but he would personally go to the house and investigate.

He found the elderly lady sitting on the front porch crying and frightened. He stayed at her side until the storm subsided and then found a working telephone to report back to a much-relieved Mrs. Summers—still on duty.

Mrs. Summers summed up her experience by saying, "It's so unusual in this day and age to find someone who would go so far out of his way to help you."

As if she herself hadn't remained at a switchboard position, hours past her scheduled quitting time.



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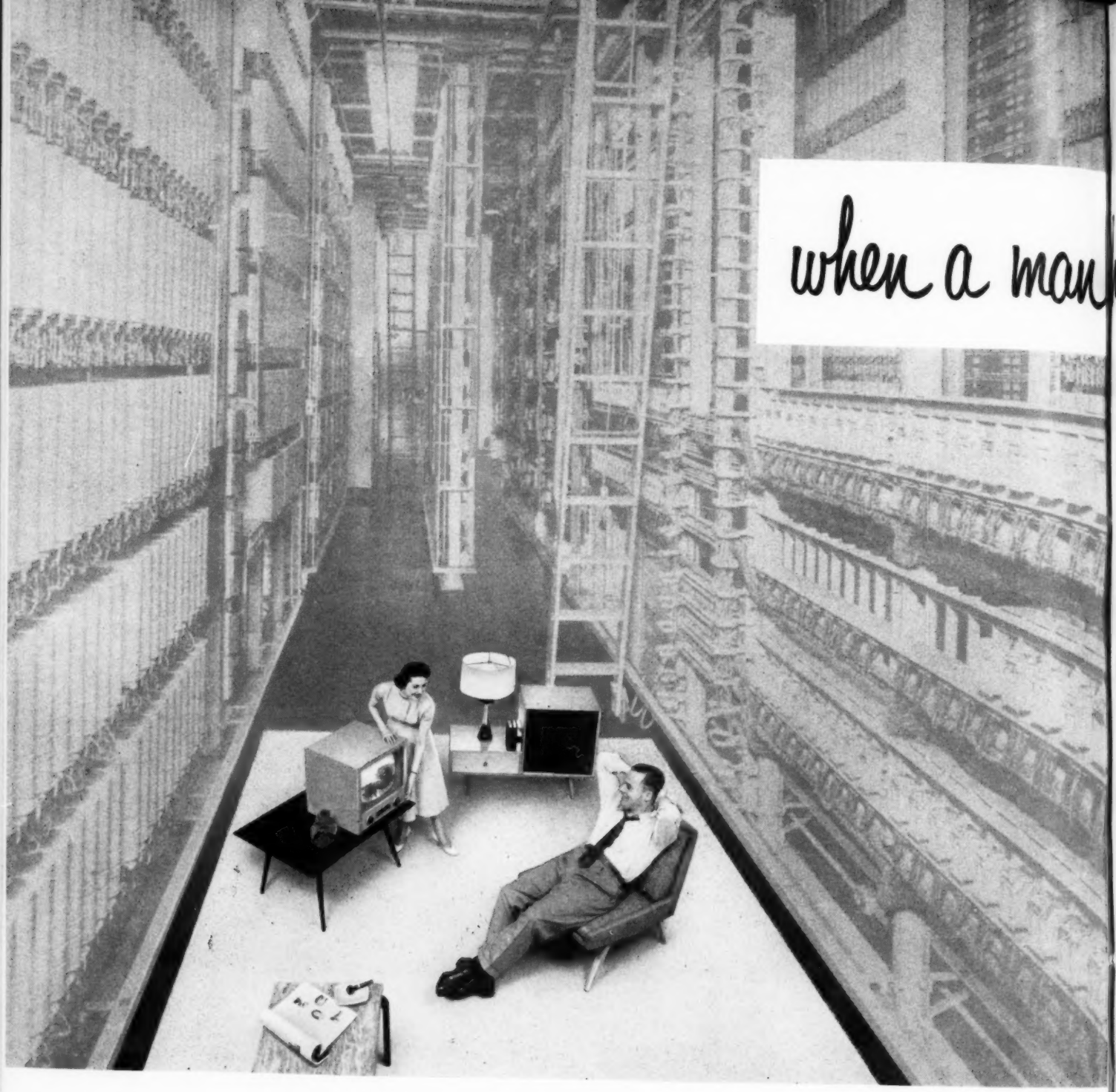


AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

XUM

...as to live with it, he plans it right!

There's something reassuring about the way Automatic's people work with you to plan your new Strowger exchange. They act just as though they were going to have to live with it.

Because they are!

They're not through with you at cutover. They're going to be at your call all through the long, long life of your exchange.
So they plan it *right*. Drawing on over 60 years of successful dial exchange experience—a resource that only Automatic Electric can offer—these experts smooth your path, boost you over each hurdle.
Let's see just who they are, and what their help means to you:

Your Automatic Electric Salesman

He knows you and the problems in your area. His practical telephone-man's approach to them can do much to insure your success.

Automatic Electric Staff Engineers

These experts help in the initial planning of your exchange—the traffic survey, growth survey, method of handling toll traffic, building-site selection, building planning, and equipment selection. They suggest the most efficient and economical solutions for each problem, and provide amply for present requirements and for future expansion.

Automatic Electric Design Engineers

Each an expert in his own specialty, they select for your exchange the proven arrangements and circuits that will work best for you. They design new arrangements to meet new needs. Then the equipment is made under Automatic's rigid quality control standards, with every precaution taken to insure its being a 100% success.

Automatic Electric Operating Engineers

Skilled consultants, they provide you with a free advisory service covering cable records, billing, routining, cable plant design, and service problems. They help you set up operating procedures which assure that your exchange will afford you a maximum return on your investment.
Call us when you plan to convert to dial. We'll be there...pronto! Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or call HAymarket 1-4300.*

XUM

Section 14 (Continued)

(3) Do not count as attendant trunk calls such requests from restricted extensions which are completed over the attendant trunk. Such calls should be counted as "outgoing, dialed or passed by attendant."

Allowance for Operating Methods

Generally any call pegged under "Allowance for Operating Methods" is also counted under one of the "Base Coefficient" items.

Receiving Time and Charges. Count here when time and charges are requested and then quoted at the end of conversation and recorded by the attendant.

Passing Room Number to Toll Operator. Count here when attendant passes room number to toll operator (Hotel counts only.)

Quoting Charges. This in general refers to LD calls from hotels. However, occasionally other than hotel PBX's will quote LD charges to a customer using service from an extension.

Announcing Calling Party to Called Extension. Tally those calls on which attendant announces calling party to called extension.

Verifying Calling or Called Extension. This item refers only to hotel counts.

Ticket Work. Count only those calls on which a ticket is made for the purpose of charging. Do not count tickets used to record LD Calls. Such tickets are taken care of by the LD coefficient. *Do not count memo tickets.*

Reference to Exchange Directory. Peg each time the attendant refers to the outside exchange directory.

Extension Hang up. Tally those calls where the extension user places call through his PBX attendant and then hangs up, making it necessary for her to call him back to complete the connection.

Deliver Message.

(1) Peg such calls attendant places to extension user, advising him of a call he has received, to deliver a message or to pass him information he has requested.

(2) Count such calls attendant, acting as receptionist, places to extension user, telling him he has a visitor.

(3) Only those messages delivered by telephone should be counted in this column.

Take Message.

(1) Applies to those calls on which attendant records a message on a form, delivered by other means than over a telephone.

(2) Count here the "take message" of "deliver message," counting message as received and then, if delivered also count under "Delivered Column."

Each Additional Pull of Dial. For each digit less than the number specified for any coefficient, subtract this allowance. For each digit over the number specified, add this allowance.

Completion to Repeating Tie Line. Applies to the operation of reaching an extension at another dial PBX by dialing the number over a tie line, using a separate front cord for dialing. (Make note of the number of dial pulls.)

Conference Calls.

(1) No call is to be applied directly to this line.

(2) Count an extension to extension call for each extension connected to the conference hook-up.

(3) Should the conference hook-up involve connecting to an outside station, tally each connection as an outgoing call, dialed by attendant.

(4) Should the conference hook up involve an incoming trunk call, peg each connection to an extension as an incoming trunk call.

Reference to PBX Directory. Tally each time the attendant refers to her PBX directory for the extension number of the party or department or for any information pertaining to the call.

Paging.

(1) Takes into account the work incident to a paged call, such as transmitting orders to the bell captain, giving subsequent and final reports, etc.

(2) Calls placed over an auto-call or public address system should be counted here.

(Section 14 to be continued next week)

Reprints Depend on Demand

With the decentralization of industry into smaller communities, many Independent telephone companies will be faced with increased installations and servicing of PBX systems. This handbook is being published to aid those companies in assisting their PBX customers to effect efficient operation of their systems.

Following the publication of all sections of the "PBX Service Advisers' Handbook," they will be available in reprint form (size of standard handbook), providing there is a sufficient demand to justify reprinting.

Among the requests for reprints received so far, are the following comments:

"Could you please inform me if there is a chance to get two copies of the 'PBX Advisers' Handbook'?

"I have military personnel operating my switchboard, and although we do have regulations and operating procedures governing the use of the switchboard, the 'PBX Service Advisers' Handbook' has the best written articles I have ever seen on the establishment of criteria for efficient PBX operation.

"I could use the book not only to indoctrinate my chief operator, but also to develop proper switchboard operating techniques in all my operators. The operators I have usually, have had no formal training."

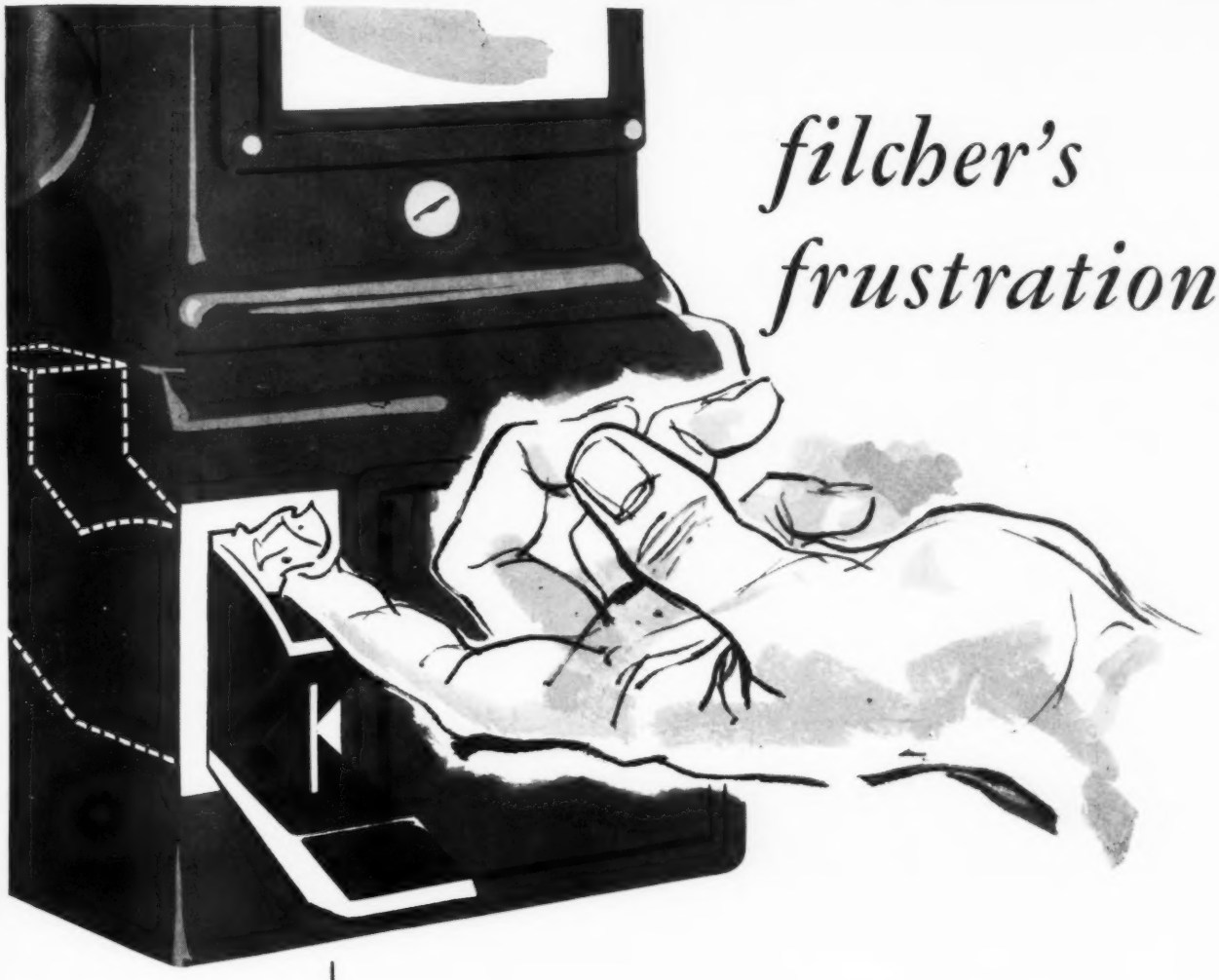
*

"We hope you will receive enough demands for your proposed 'PBX Service Advisers' Handbook' to justify reprinting.

"You may consider this an order for three copies when it is in book form."

*

"Our Technology Librarian has asked us to indicate to you his interest in buying a copy of the 'PBX Service Advisers' Handbook,' by Gilbert R. Brackett, which you plan to publish in book form if there is sufficient demand."



filcher's frustration

. . . new device prevents coin-chute stuffing

With Automatic Electric's Anti-Stuffing Coin Return, your customers *get* their coins—and *you* avoid complaints!

It makes blocking paystation coin-return chutes an impossibility. When closed, nothing can be inserted into the chute. When open, the refunded coins are instantly accessible.

The Anti-Stuffing Coin Return fits both new and existing paystations. As you order new paystations, always specify: "Equip with Anti-Stuffing Coin Return". To modify existing paystations, the lower housing assembly may be replaced, or a separate kit is available to convert it. Write today for price and delivery information. Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or call HAymarket 1-4300.*

AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

GENERAL TELEPHONE SYSTEM

XUM

Aggressive promotion, by soundly planned merchandising, holds the key to realization of the almost limitless potentialities of this business

The Course of America is Upward

By BARTLETT T. MILLER*

THE POTENTIALITIES of this telephone business of ours seem almost fantastic. [*Editor's Note:* Because this is true and because Mr. Miller pinpoints some of these potentialities so that they may be used in the operations and sales programs of Independent companies, TELEPHONY here reprints Mr. Miller's views.] It is the one facility which provides a means whereby people may talk to each other wherever they are, at whatever time, and for any length.

As duties or occupations tend to separate friends and family, the means for maintaining frequent, convenient, and every-day small talk or serious contact is restricted more and more to the telephone. One can see this trend toward separation in building developments. More and more they extend on the periphery of cities and towns, where population growth continues while that of the cities diminishes.

If one is not to be isolated from friends and relatives, then transportation or communication must provide the connecting link. Home life and household duties and inadequate facilities prevent free and easy transportation—making the telephone the natural and easy medium.

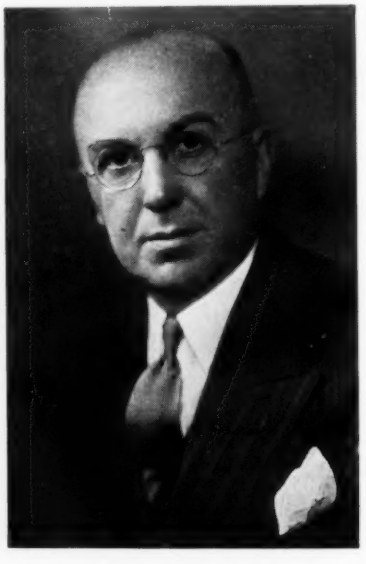
There are more and more people, in sheer numbers, every year. Population growth sometimes seems as sure as death and taxes; and as the population increases, while at the same time a lowered death rate resulting from public health measures and developments in scientific medicine increases the span of life, the number of potential telephone users increases very rapidly.

Over the next few years, a million new families will be created every year, and a few years later that number will increase to a million and a half—so that basically there will be a continuing increase in the user market for many years to come.

At the end of 1954 there were said to be 47 million households in the United States. Fourteen million had no telephone service, 29 million had only one telephone, and 20 million shared service with others. A very substantial number of these households are in ultra-modern homes—some with as many as 40 or more electrical services.

The number of families with two cars, two or three bathrooms, two television sets, runs into many millions, and most of those who don't have them want them very badly. In all these cases, "wants" exceed "needs." All, or almost all, have more conveniences than they *need*.

Our economy and our "American way of life" are geared to satisfying *wants*. People want things they don't really need, and they buy them—and that is what makes a high level of economy. If we all bought only what we needed and nothing else, we would be in a perpetually low economy.



B. T. MILLER

We in the telephone business have, on the contrary, geared our activities to customers' *needs*, and in large measure we, not they, have decided what was needed.

We have done very little to cater to this huge market in the sense that other businesses have. Others tempt it with high style, with color, with glamour.

We have generally assumed that because an instrument was technically good and strong, the one type should serve both the lady in her boudoir and the mechanic in his shop.

We have not tried to find out— or not very diligently, at any rate—what are the communication possibilities of the average family: how they live, what they want in the way of style, color and so on. When we have done so, and have made an honest effort to meet their *wants*, we shall certainly be amazed at the potential.

Home Telephone Systems

If we gave serious consideration to designing and promoting a home telephone *system*, it is not unreasonable to expect that average development might reach two and even three telephones per residence in better than 90 per cent of residences. This could mean that by 1965 or '70, when we have 45 million homes in the Bell System territory, we could have 100 million telephones in those homes instead of the 30 million or so that we now have.

Coincident with this growth we should stimulate usage of the service —dependence on it.

In a number of indirect ways we

*Mr. Miller retired, effective May 31, as vice president in charge of merchandising of the American Telephone & Telegraph Co. This article appeared in the Spring 1956 issue of the *Bell Telephone Magazine*.

have really discouraged calling by telephone.

We have encouraged party lines—sharing the service with others.

We have used measured service as a development rate, and thus taught customers to keep down their calling.

We have talked so much about party-line interference and shared-line courtesy—implying a naturalness of party line—that state laws have been passed regulating use under certain circumstances, and some commissions have suggested limiting length of conversations on party lines.

But the worst thing, I believe, is that we have encouraged the belief that the principal benefit of the telephone is for emergencies and very important calls—to the extent that the real comfort and neighborliness of friendly chats and visits are frowned on by husbands and ridiculed by the cartoonists as trivia and inexcusable loafing. Chit-chat is the food on which friendships thrive—and the telephone ought to be the symbol of friendship.

Telephone Usage Should Rise

Of course, if these hundred million residence telephones are used as we hope they will be and as they should be, business telephone requirements would be very substantially increased; because the interplay of business and residence service indicates there is a reasonably close relationship between the two.

This increase in telephoning between home and business, together with the growth of business to serve this growing America—not to mention the improvement in communications devices that we see on the horizon—will bring about a similar substantial increase in the telephone requirements of business users. This will match, if indeed it does not exceed, the expansion in home telephone development.

The network of over 100 million telephones, interlinked with long distance channels in the packages in which we shall be able to furnish them, will make possible almost unlimited long distance calling.

"Free and easy" long distance calling could however be hampered by busy party lines and inadequate number service. We should therefore do everything we can to eliminate the "shared" services and, as quickly as we can, develop perhaps an entirely new system by which the number of any telephone can be quickly and easily secured.

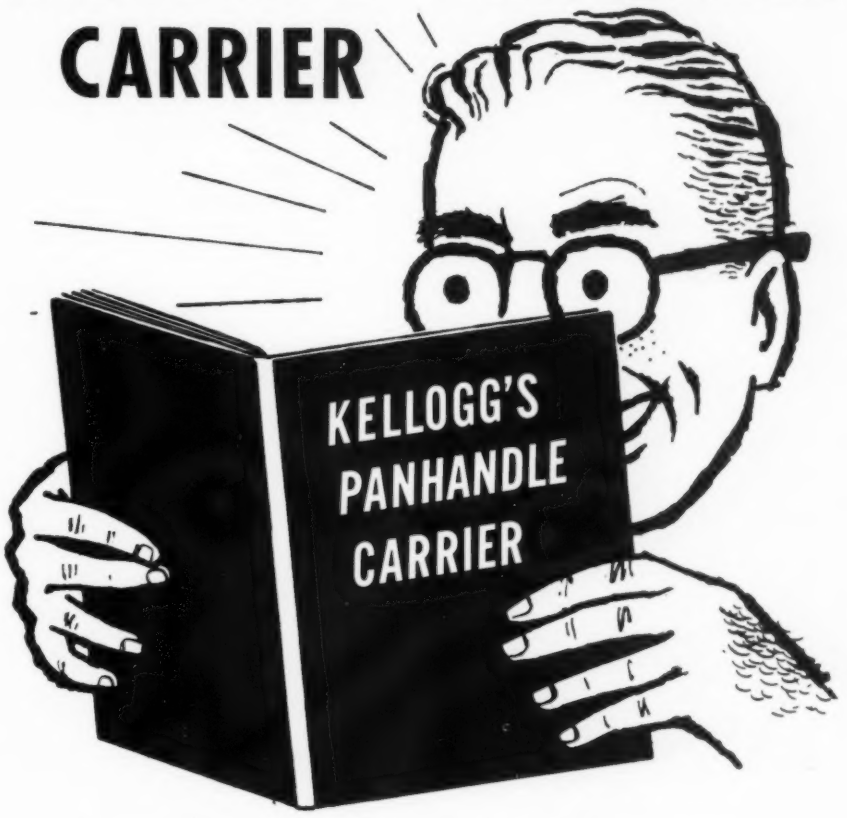
Anticipate Public's Desires

To do all this, we must take command of our ship, so to speak; we must wrest control of it from the seas of

Send for your copy of the

NEW booklet on

KELLOGG'S PANHANDLE CARRIER



It contains information about the 10 channels per circuit, the adaptability to all types of ringing, the automatic regulation, the plug-in units, etc.

You'll find it interesting reading. It's packed with information that will help you to increase subscriber satisfaction and get more revenue from your existing facilities.

For technical details and application information, use this coupon to request the new Kellogg Panhandle Carrier Bulletin #5605.

KELLOGG
A DIVISION OF IT&T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY
A Division of
International Telephone and Telegraph Corporation

Sales Manager
Electronic Products Dept.
Kellogg Switchboard & Supply Co.
6000 West 51st Street
Chicago 38, Illinois

Gentlemen:
Please send me the new Kellogg Panhandle Carrier Bulletin #5605.

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FIRM_____
ADDRESS_____
CITY_____ ZONE___ STATE_____

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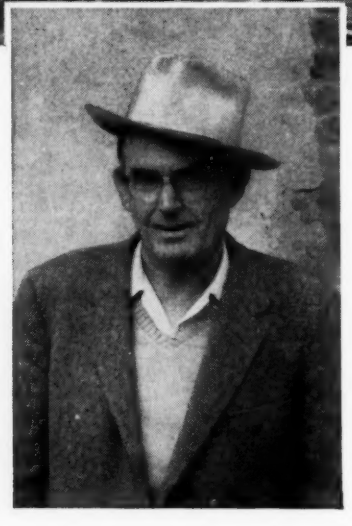
IN EMERGENCIES...



Scenes like this were commonplace after a tornado roared through the central Georgia area served by Public Service Telephone, on the night of March 13, 1954. Over 5 miles of its toll circuit was down between Butler and Macon. Many miles of open-wire line was also out of action and in some places entire half-mile sections of pole line had completely disappeared. Yet close cooperation between emergency line crews, Graybar, and its suppliers helped restore service inside of 4 days.

we know we can rely on Graybar!

says: H. C. BOND, *President*
Public Service Telephone Co., Reynolds, Georgia

"It was a pretty grim picture — our lines were down all over the place. And to make matters worse, they were mixed up with the power lines on joint-use poles.

"The first thing we did was call Graybar in Atlanta for help. Even though it was Sunday, we had a shipment of repair sleeves, block and tackle, and tools here by 2 P.M. — enough to outfit the 25 volunteer linemen who showed up to help us restore temporary service. Henry Mote was also on hand and effectively expedited an emergency shipment of wire which arrived the following day.

"Though the complete repair job took over two weeks, we had temporary service going on all lines by Thursday morning thanks to the wonderful way everyone pitched in to help.

"Fortunately tornados don't happen by every day, but in emergencies or for our everyday needs, Graybar is just as close to me as my telephone. I've grown up with them, because for as far back as I can remember my father was a Graybar customer. It just seemed natural for me to continue dealing with an organization that could always be counted on for service, helpfulness, and nationally-recognized product lines. Graybar's assistance is always freely given and means a lot to us." 525-236

GRAYBAR ELECTRIC CO., INC.
Executive Offices:
Graybar Building, New York 17, N.Y.

Call Graybar first for . . .

"H. C." Bond and Graybar Representative, Henry A. Mote go over plans to cut over all five PST exchanges from magneto to dial operation this October. Mr. Bond's father, who founded the Public Service Telephone Company in 1911, was one of Mote's first customers on beginning his career with Graybar 28 years ago. Public Service Telephone serves all or part of 7 counties in central Georgia.

Public Service Telephone has standardized on tools . . . via Graybar, too. From rope to ladders . . . hand tools to safety equipment, PST linemen are provided with modern, efficient equipment manufactured by Graybar suppliers who are recognized as "tops" by linemen across the nation.

You too can benefit from Graybar's services! Pole line supplies for maintenance and new construction . . . exchange and office equipment . . . linemen's tools and safety equipment — all are conveniently available from Graybar warehouses located near you. Call us for any telephone need. Like you, we are proud of our independent status. Graybar is owned solely by its operating and retired employees.

GraybaR QUALITY *Everything Electrical*

UNITED STATES INDEPENDENT TELEPHONE ASSOCIATION

IN OVER 130 PRINCIPAL CITIES

demand which have buffeted it in the last 10 years. We must plan ahead. We must believe we can create markets, and we must learn how.

We must anticipate the public's desires and be ready to meet them, and we must use aggressive promotion—the kind that competitive business constantly employs. This must be the spirit that triggers all our activities—a spirit that recognizes that what America desires today will be America's need.

To do less is to declare ourselves apart from the very essence of the dynamic spirit that has made this country different from the Old World. The market is there, of that I am sure, and we can do it if we put our minds to it.

Three lamps per room and three bathtubs per home did not come about merely because the people wanted them and were ready to pay for them. They came about because American business enterprise saw a potential market and set out to develop it aggressively.

It is this same spirit of enterprise that conceived the Bell System, and we must be ingenious enough to keep it alive despite our increasing size and despite the absence of the spur of direct competition. I have explicit faith that we can accomplish anything we decide we want to accomplish.

Growth Followed Wars

Strictly speaking, we have not built the telephone business to its present size by aggressive promotion. It has developed almost in spite of us because, unfortunately, we have had to employ retarding methods so many times.

The two tremendous growth periods in our country were subsequent to the two world wars, and during both of these periods we not only had inflation but, since the materials we use in building telephone plant are the same that for war purposes are strategic, we had to step aside in our requirements to make way for defense.

Fortunately for the growth of the business, if not for the prosperity of the companies, the rates for post-war telephone service have proved to be relatively lower than the cost of other wanted things. Unstimulated "demand," together with the social decentralization of our population, has therefore provided our growth to the point where over 73 per cent of all families now have some kind of telephone service.

If demand stimulation were aggressively used, we could undoubtedly increase this development to 90 per cent or 95 per cent of all families.

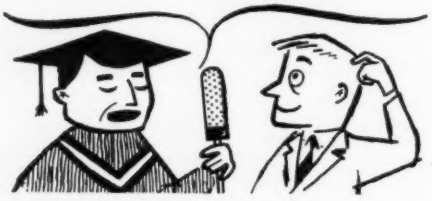
We shall probably always have business cycles, but I would doubt that

(Please turn to page 46)

XUM

QUESTION—

which of these CROSSBAR benefits means most to you?



Maximum expansion—*Kellogg Crossbar switching equipment can grow from 10 to 10,000 lines.*

Lower installation costs—*No soldering or wiring is required. The Crossbar comes to you ready to plug in.*

Minimum maintenance costs—*Due to the unique construction of the Crossbar, routine maintenance is practically eliminated.*

Convenience—*Drawer-mounted switches pull out for easy inspection.*

High traffic capacity—*Multiple paths allow 10 to 20 calls to be placed simultaneously.*

ANSWER

These are all important advantages, but there are many more cost-saving features of the Kellogg Crossbar that you should know about. Write today for your copy of the Kellogg Crossbar Bulletin.

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A DIVISION OF I T & T

KELLOGG SWITCHBOARD AND SUPPLY CO.
A Division of
International Telephone and Telegraph Corp.
Sales Office: 79 W. Monroe St. Chicago 3, Illinois

Courts and Commissions

5.97% Return Approved for Minnesota Independent

McLeod County Telephone Co., Glencoe, on May 18 was authorized by the Minnesota Railroad & Warehouse Commission to increase net operating revenues by $37,598 so as to secure a 5.97 per cent return.

On a rate base of $684,372 the McLeod County company had been earning a 4.26 per cent return with net operating revenues of $175,839 and net operating income of $29,319.

The newly authorized rate of return was figured on a revised rate base of $693,168, and will be realized on net operating revenues of $213,437 and net operating income of $41,375.

Old and new rates for the company's Glencoe and Plato exchanges are:

	*Old**	*New**
Business:		
One-party	$4.75	$6.25
Two-party	4.00	5.50
Rural	3.50	4.50
Residence:		
One-party	3.25	4.15
Four-party	2.50	3.15
Rural	3.00	
Rural (over 12 per line)		3.50
Rural (12 per line or under)		3.80

Mileage Charges:

For business and residence service outside of local exchange area:

Old: Each one-eighth mile or fraction thereof

New: Each one-tenth mile or fraction thereof

(Airline mileage basis)

One-party	$ .30
Two-party, each subscriber	.20
Four-party, each subscriber	.15

* A discount of 25 cents is allowed if total bill is paid on or before the 15th day following date of bill.

The McLeod County company operates seven exchanges and serves 3,979 stations (as of Oct. 1, 1955.) The company was acquired by the Pioneer Telephone Co. on Nov. 2, 1955.

The last rate increase, under the former management, was granted by the commission in an order dated June 12, 1952.

Asks N. C. OK to Construct

The Pinebluff Telephone Co., Inc., asked the North Carolina Utilities Commission on May 29 for a certificate of convenience and necessity to construct a new telephone system in Pinebluff and Moore County and in certain areas of Richmond and Scotland counties.

N. C. Company Gains Part Of Requested Rate Increase

The Durham Telephone Co. was authorized by the North Carolina Utilities Commission on May 28 to increase its rates sufficient to produce a rate of return of 5.81 per cent. The rate increases approved will provide an additional $96,667 a year in revenue, compared with $201,000 sought by the company. After taxes, the net operating income increase will be $41,000 (TELEPHONY, Nov. 12, 1955, p. 45).

The commission found that a "fair value" of the company's telephone property is $5,200,000 and that it has been earning only 5.02 per cent.

Commissioner Edward H. McMahan, in a strongly worded dissent, criticized the methods by which the commission arrived at its decision, contended the company should have been granted an increase of between $194,000 and $233,000 a year. He charged that the commission was invading the field of management. Increased rates approved by the commission follow:

Business: One-party, raised from $7.50 to $8.75 (proposed rates: $10); two-party, $6.50 to $7.25 (proposed: $8.50); four-party, $5.00 to $5.50 (proposed: $6.50); multi-party, $4.25 to $4.75 (proposed: $5.00).

Residence: One-party, $3.50 to $3.75 (proposed: $4.25); two-party, $3.00 to $3.10 (proposed: $3.50); four-party, $2.25 to $2.35 (proposed: $2.50); multi-party, $2.25 to $2.35 (proposed: $2.50).

Mr. McMahan took issue with the other commissioners in the determination of the "fair value" of the company's property. The commission ruled that the fair value was $5,200,000. McMahan said he thought the property should be valued at between $5,750,000 and $6,000,000. The company contended it was valued at $7,435,714. He also objected to the commission's action in not allowing the company to charge $80,000 to operating expenses spent in making the rate case.

As for the rate of return allowed

by the commission, McMahan said, "I do not think a rate of return of only 5.81 per cent is fair or reasonable, and only in recent cases has the commission itself gone that low." He said he felt a 6 per cent rate of return "is not excessive, and anything below that figure is unfair."

N. C. Commission Holds to Previous Service Order

The North Carolina Utilities Commission on May 30 refused to alter a previous order directing the Lee Telephone Co. to serve an area in Surry County which the Surry Telephone Membership Corp. proposed to serve (TELEPHONY, May 5, p. 32).

The commission on Mar. 8 directed Lee Telephone to provide telephone service for residents of the Hart's store community. The membership corporation in a petition filed on May 24 said that it had been granted an exclusive franchise to serve the section by the North Carolina REA, and claimed that it had "incurred certain financial obligations which would be impaired or lost" if the territory is taken over by the telephone company, and that it should have been allowed to intervene in the proceedings.

The commission ruled that Surry Telephone Membership Corp. was not a party in the original hearing, and that the order issued on Mar. 8 is the order that should have been entered in the matter.

Carolina T&T Requests Purchase of Independent

The North Carolina Utilities Commission on May 28 was asked to approve the proposed sale and transfer of operating rights of the Parkton Telephone Co. to the Carolina Telephone & Telegraph Co.

The Parkton company was owned by the late J. H. McRainey, who died on Jan. 10. Mr. McRainey's widow and administratrix of his estate, Mrs. Agnes Fisher McRainey, has agreed to sell the company to Carolina T&T.

The proposed sale already has been approved by an order in Robeson County Superior Court.

Carolina Telephone & Telegraph operates throughout the larger part of eastern North Carolina, with headquarters at Tarboro.

Minnesota Commission OKs Purchase of Two Companies

The Minnesota Railroad & Warehouse Commission on May 28 authorized the Melrose Telephone Co. to purchase the Watkins-Kimball Telephone Co.

The commission on the same day gave

LOOK TO

LINDSAY

FOR

everything

in Nationally Known Telephone Supplies

Lindsay's extensive warehousing operation means *immediate* shipment of most supplies . . . and our fast, efficient, *personalized* service guarantees satisfactory handling of every order from placement to delivery.

For reliability both in product and in service . . . "Look to Lindsay" . . . specialists in telephone supplies *only*. —Phone or write for immediate delivery or required data.

THE LINDSAY TELEPHONE SUPPLY CO.

10409 Meech Ave., Cleveland 5, Ohio

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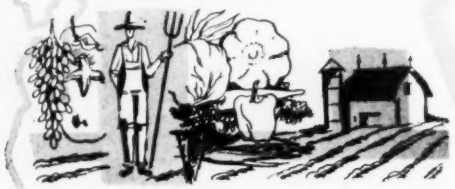
at Delta Telephone and Telegraph Co.

It's C&D Calcium Batteries for EXTRA life



One of C&D's typical installations in use at the Delta Telephone and Telegraph Co., Courtland, Calif. The 24 PlastiCal (lead-calcium) cells, Type PCE-420, have a 420 A.H. capacity.

In the growing community of Courtland, California, the Delta Telephone and Telegraph Co. relies on the continuous, dependable service provided by C&D PlastiCal batteries. For here, in the historic Delta region, the Delta Telephone and Telegraph Co. has found that C&D has the answer to telephone battery needs.

When you order your next telephone battery, specify C&D. For with C&D, you get:

1. **One-piece, permanently-sealed plastic case. Entire unit is shock-resistant, lighter, and more compact than glass or rubber.**
2. **Exclusive suspended and supported plate construction eliminates leaks due to internal stresses.**
3. **Easier maintenance, because patented Post Seal eliminates acid creepage.**
4. **Lower shipping costs. Light plastic case reduces total in-place cost.**

You can order C&D batteries from your equipment supplier.

Write for bulletins!

For details and specifications on C&D telephone batteries, write for Bulletins T-527 and T-528.

C&D BATTERIES, INC.
of Conshohocken, Pa.

Manufacturers of Industrial Batteries since 1908

Sales and Service Offices in Principal Cities from Coast to Coast

Donald G. Holtsapple permission to purchase the Ray Telephone Co. from Carl Z. Watt.

Pennsylvania Independent Given Increase in Rates

The Red Bank Telephone Co., Export, has been given Pennsylvania Public Utility Commission authorization to increase its rates an estimated $29,800 at staggered dates between June 1 and next Apr. 1, it was reported on May 29.

The increases will be put into effect as the company converts five exchanges from magneto to automatic operation in Armstrong, Clarion, Elk and Jefferson counties.

Decisions Made in 20 More Southern Bell Strike Cases

Boards of arbitration recently made decisions in 20 cases involving Southern Bell Telephone & Telegraph Co. employes in Georgia, Tennessee, North Carolina and South Carolina, who were discharged during the strike last year.

Discharges were upheld in cases of nine employes charged with misconduct; 10 other employes were ordered reinstated with full back pay, and two other employes were ordered reinstated with four weeks suspension.

Cases of 222 employes discharged during the strike have been decided so far. Of this number, the dismissals of 72 employes have either been upheld by the arbitrators or agreed to by the Communications Workers of America union. In all, 247 employes were dismissed for misconduct.

Party-Liners Talk Until Fire Burns Line in Two

While flames crackled in her home on May 19, a frantic Kansas City, Mo. housewife pleaded for 15 minutes for two women on a party telephone line to let her call the fire department, reports the Associated Press.

The women finally relinquished the line, but the fire burned the line in two at the home of Mrs. Donald L. Siegelen just as she was calling the firemen.

The central operator heard the address, however, and finished the message to the Edwardsville volunteer fire department.

The fire, started by a gasoline lantern, caused damage estimated at $5,000 before it was put out.

Gets Loan Approval in Ohio

The Ottoville Telephone Co. recently received approval from the Ohio Public Utilities Commission to execute and deliver its note and mortgage to REA,

in the principal amount of $145,000, for the construction of an automatic plant and for improvement of existing plant. Authority also was granted to issue 460 membership certificates with a stated value of $10 per certificate.

Bell Tests Auto Drive-in Telephone Booth

The Bell System's first drive-in telephone booth has been placed in service on a test-run basis outside Indianapolis, Ind.

Entirely experimental, the telephone's reception and use by the motoring public will be closely studied.

Located on a graveled drive 28 feet from a heavily traveled highway, the "booth" has an overhead aluminum canopy which covers about two-thirds of an auto.

Obituary

WILLIAM E. MACDONALD, 76, formerly district wire chief of The Lincoln (Neb.) Telephone & Telegraph Co. at Beatrice, died in Beatrice on May 21 after a long illness.

He had been associated with the industry for 56 years, having had his first employment with the York County Independent Telephone Co., York, Neb., at the turn of the century. Later he worked at Norfolk, Neb., and Council Bluffs, Iowa, for the Bell System and then spent six years as manager of the City Telephone Co. at Sidney, Iowa.

He joined LT&T in 1927 as a combinationman at Lincoln and then became a switchboard installer. In 1934 he was made wire chief at Nebraska City and the next year became district inspector serving at York, Hastings, Lincoln and Beatrice. He was appointed district wire chief at Beatrice in 1945 and retired in 1947.

He was a charter member of the Frank H. Woods Chapter of the Independent Telephone Pioneer Association.

Minn. Company Changes Name

Harold L. Ericson, president of the Minnesota Central Telephone Co., Hector, Minn., recently announced that Minnesota Central is the new name of the company formerly known as the Hector Telephone Co. The corporate structure of the company remains unchanged. The company operates seven exchanges.

Be Extra Wary on Weekends

More than 41 per cent of the deaths and more than 35 per cent of the injuries due to motor vehicle accidents last year occurred on Saturdays and Sundays.

He's actually replacing a filter

With some carrier systems, you'd have to do a major teardown just to get at the filters.

With this Stromberg-Carlson, you simply slip off a metal dust-proof cover, swing out a hinged chassis and there they are.

Getting at filters is fast and easy. We keep them individually apart, instead of in a single can. This saves you a lot of money if a filter or coil goes. You replace only one—instead of the whole canful.

Stromberg-Carlson gives you other features like this. Let us tell you all that they mean in simple installation, space savings, easy growth and long service. Write us.

XY **STROMBERG-CARLSON COMPANY**
A DIVISION OF GENERAL DYNAMICS CORPORATION
Rochester 3, N. Y.

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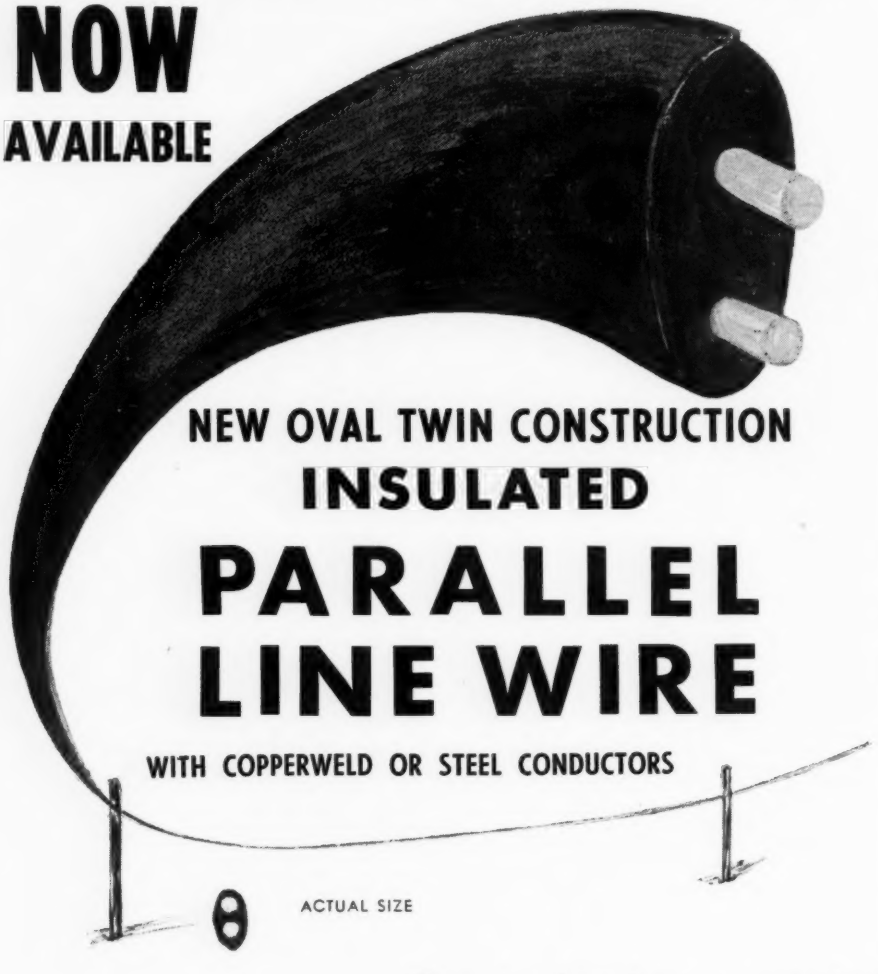
BUCKEYE LEADS THE SUPPLY FIELD AGAIN!

NOW AVAILABLE



NEW OVAL TWIN CONSTRUCTION
INSULATED
PARALLEL LINE WIRE
WITH COPPERWELD OR STEEL CONDUCTORS

ACTUAL SIZE

- CUT CONSTRUCTION COSTS TO MINIMUM
- SAVE ON VALUABLE INSTALLATION TIME
- USE FOR LONG-SPAN SERVICE LINE DROPS
- REPLACE OPEN WIRE RUN CONSTRUCTION

We Also Carry a Complete Line of Accessories for use with Parallel Line Wire

There has long been a recognized need for a wire of this type. A high strength construction with 2 parallel conductors encased in a highly weather-resistant black Polyethylene insulation. Gives greater and longer service than open wire with less time and effort required to install. Cuts costs to a minimum. Available in several types: PWC Ruraline #212 with 2 No. 12 AWG solid Copperweld conductors, PWC Ruraline #214 with 2 No. 14 AWG solid Copperweld conductors, and Superior PLW 083S with 2 conductors of .083 galvanized steel.

SEND FOR CIRCULAR 356

BUCKEYE TELEPHONE & SUPPLY CO.

1250 KINNEAR RD. COLUMBUS 21, OHIO

THE COURSE OF AMERICA

Concluded from page 41

they would be of the same violence as some which have occurred in the past.

But whether these fluctuations be relatively large or small, we must have courage to see beyond them. *The long course of America has always been upward. We must, in a dip, keep a serene faith in this fact and, in a down spell, look forward in our actions and decisions to this ever-upward long course.* This is something that, in the past, we have never been able to do, but which we can and must do in the future.

To me, this faith in the future of our country and the part the system plays in it is the real essence of the merchandising idea. It is, I think, a philosophy that telephone people must adopt, and I believe they have eagerly grabbed for it.

The reason is understandable, for it is a philosophy of the spirit. It feeds the soul. It is what we have called in the past the spirit of service. Maybe in detail it is different—I do not know. But it means we are working not just for money, nor to increase sales, nor to meet demand, nor to increase profits—but to serve and be a contributor to an ever-growing, ever-better country. This is a goal that does and will excite people.

Faith in ourselves, in our ideals, and in our country has in the past inspired our noblest and best actions. We must keep that faith.

Confident But Cautious

"Fortunately, most businessmen seem to be keeping a careful eye on developments. To some observers, the very speed of the recovery has seemed too good to be true. They express misgivings about the high rate of housing starts, the growing burden of consumer instalment and mortgage debt, declining farm income, and scattered indications of commodity price weakness. They wonder whether people are overextending themselves, and are watching such sensitive indicators as delinquencies, garnishments, and foreclosures. So far no convincing danger signals have appeared, but these misgivings are worth bearing in mind. The confident but cautious optimism that has served business so well in recent years is still needed."—*Excerpt from First National City Bank (New York) monthly letter.*

Forgotten Goals

In the ardor of pursuit, men soon forget the goal from which they start. —SCHILLER.

J. L. Van Horn Named Head Of General System Area

Joseph L. Van Horn has been elected president of the telephone companies in General Telephone System operating in the states of Iowa, Missouri, Nebraska and Minnesota.

Effective June 1, W. T. Autry, who has been president of Nebraska Conti-

J. L. VAN HORN

nental Telephone Co., will become vice president of this same group of companies; D. A. Barnes, who has been secretary-treasurer of Iowa Continental, will become controller; H. L. Etes, who has been general manager of Missouri Telephone Co., will become general plant manager; C. H. Joy, who has been vice president and general manager of Fairmount Telephone Co., will become general traffic manager; D. C. Elliott, who has been assistant secretary and assistant treasurer of Missouri Telephone Co., will become secretary and treasurer.

Headquarters for this group will be at Grinnell, Iowa. The number of telephones in service for the entire group is about 80,000.

Paths for Economic Advance

"The nature of our economic system is such that it must expand in order to remain vigorous and healthy. In an era when the opportunities for geographic expansion are almost nil, the only practicable means of expanding our economic system is through the development of new products or through the development of techniques for producing products more efficiently. Both of these depend on scientific and technological effort, involving continuing emphasis on mechanization in all of its phases."—A. V. ASTIN, *director, National Bureau of Standards.*

Very easy does it

Say you want to inspect the Stromberg-Carlson carrier unit.

You do it all from the front. Without removing anything, you can get to the tubes and even test points. You can get at relays by removing the dustproof slip-on cover. To get at filters, main terminal strip and test jacks, pull out the hinged chassis.

It's that easy.

Front access is one of a goodly number of features you get in Stromberg-Carlson carrier. It gives you easy installation, saves space, provides expansion, gives long service.

Send for detailed information.

STROMBERG-CARLSON COMPANY
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XUM

ITU Reports on World-Wide Communications Progress

Important progress towards the "full automatization" of international telegraph and telephone operations and a better use of radio frequency bands reserved for marine and aviation needs was achieved in 1955.

These developments are indicated in the annual report of the International Telecommunication Union, a United Nations specialized agency which is helping to obtain faster, more efficient and cheaper service in world-wide communications.

The report will be considered by the UN Economic and Social Council at its 22nd session, opening on July 9 in Geneva.

During the year under review, the report states, the first entirely automatic telephone tests between exchanges in different countries were made.

An important task of the ITU, the report notes, is to see that the growing, but still limited, possibilities of the radio frequency spectrum are utilized in the best interests of all countries and of all categories of users, such as commercial, aviation, marine and broadcasting services.

The International Frequency Registration Board—a main organ of the ITU which assists in the international voluntary regulation of the use of radio frequencies — recorded considerable progress in this work during 1955. Civil aviation and mercantile marine radio-communications had especially benefited from better use of radio frequencies, according to the report.

Great difficulties still exist in regard to frequency bands reserved for international broadcasting, the report says, but it is possible that improved techniques and "better political and economic conditions may lead to solution of this problem sooner or later." Experience had shown, it adds, that it is always possible ultimately to get international collaboration in the telecommunication field.

As a notable advance, the report also cites the conference held under the ITU's auspices in Göteborg, Sweden, last September when the coastal countries of the Baltic and the North Sea reached unanimous agreement on matters vital for the safety of life at sea. These countries agreed on the use of a given frequency for radio-telephone appeals and distress messages in the most efficient possible way, particularly by providing for the use of automatic alarm apparatus on that frequency. They also defined methods of alert and mutual assistance in the case of a navigation accident.

According to the report, the ITU plans to work toward the world-wide application of the provisions of the Göteborg agreement or similar provisions.

Another important achievement in 1955, the report points out, concerned the decision to merge two of the ITU permanent organs: the International Telegraph Consultative Committee and the International Telephone Consultative Committee, which have played a major role in standardizing techniques, operating methods and rates in telegraphy and telephony.

Beginning Jan. 1, 1957, a single body will take over in both fields since the transmission techniques have become closely comparable.

"Although the participation of the ITU in the UN Expanded Technical Assistance Program remains small owing to the extremely small quota of the special fund allotted to it," the report notes, 18 ITU experts in 1955 were on mission in nine countries — Saudi Arabia, Ethiopia, Iran, Iraq, Jordan, Lebanon, Malaya, Syria and Pakistan. The country receiving the greatest amount of technical assistance is Pakistan, where the telecommunication aid began in 1952 and has continued without interruption.

The ITU further provided 18 scholarships and fellowships in 1955, and 15 more in the early part of 1956.

The report also contains reports showing the position of countries in relation to various international conventions, regulations and agreements in the telecommunication field.

"Sure glad it's a **KOPPERS POLE!**"

Koppers Poles are strong—strong enough to give users decades of trouble-free service. Specify Koppers Pressure-Treated Poles. Write for full information. Koppers Company, Inc., Wood Preserving Division, Pittsburgh 19, Pennsylvania.

KOPPERS

PRESSURE-TREATED POLES

"Could I have him call you back? He's busy on another line."

Highway Trailer Advances Three To Executive Posts

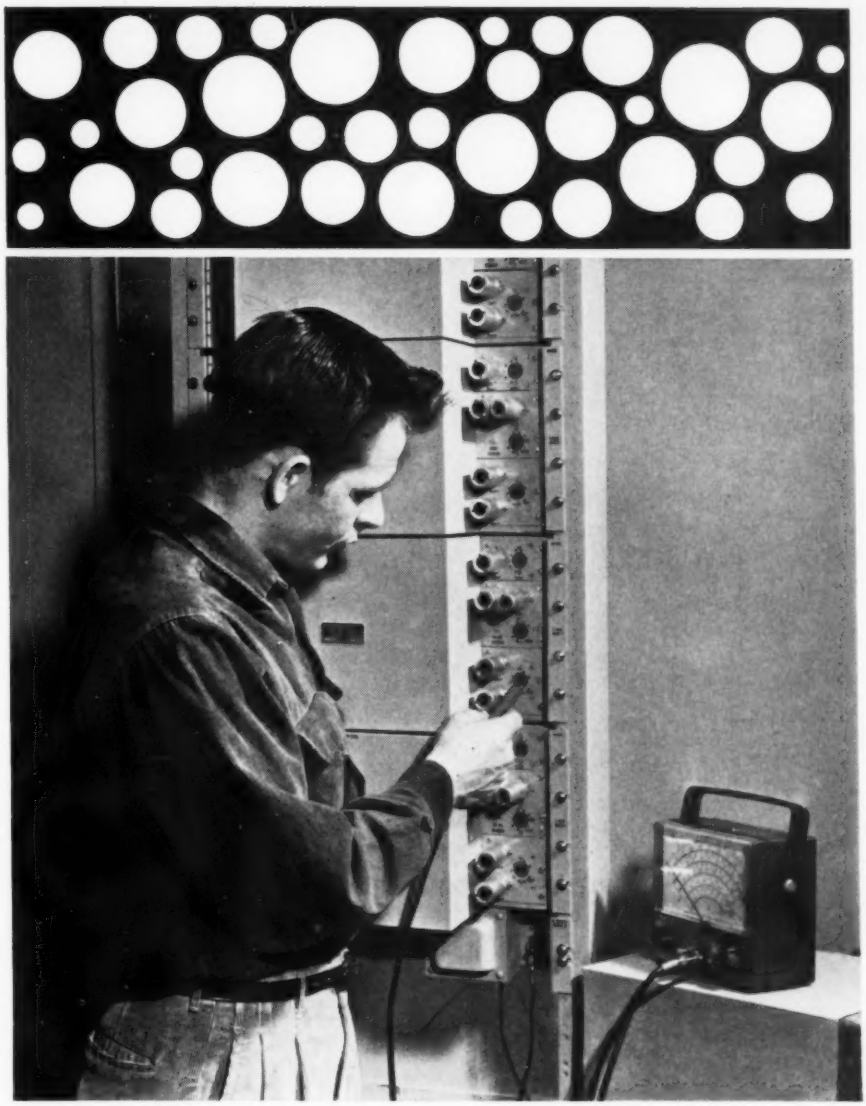
The election of William J. Mesler as vice president-credit and Curtis N. Christy as treasurer of Highway Trailer Co. was announced on May 31 by Harold J. Meagher, president. The appointment of Baxter L. Schroeder as sales manager of the utility division also was announced as a further management advancement move.

W. J. MESLER

C. N. CHRISTY

Highway Trailer Co., which operates as a division of the equipment department of Merritt-Chapman & Scott Corp., manufactures an extensive line of commercial trailers and also is a major producer of earth boring machines, utility bodies and other equipment used in the construction and maintenance of public utility lines.

Mr. Mesler joined Highway Trailer in 1949 as credit manager and has served as assistant secretary since March 1955. Mr. Christy has been



These tubes stay cool

Unless you get rid of it, the heat generated by vacuum tubes reduces the life of the tubes.

Best way to get rid of the heat is to give it plenty of freedom to move. That's why we leave the tubes in our carrier units uncovered.

Tubes stay cooler. And cool tubes last longer. Ambient temperatures stay well below the levels that can cause potting compounds to melt.

We pay attention to many points like this to save you time, trouble and money with Stromberg-Carlson carrier systems. May we tell you more about them?

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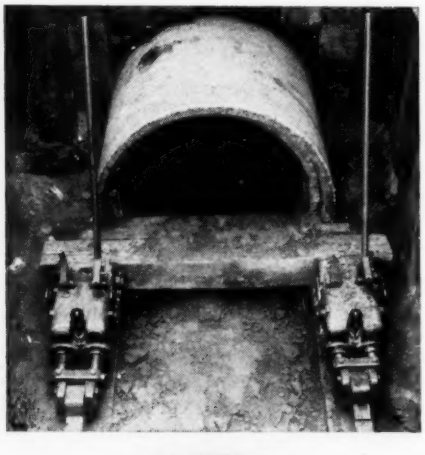
FAST, EASY WAY TO INSTALL PIPE... AT LOWER COST

PUSH PIPE UNDERGROUND WITH A GREENLEE HYDRAULIC PUSHER

Here's the simple, cost-cutting way to install underground pipe. Speed your jobs with a GREENLEE Pusher. One-man-operated, portable, simple to operate. No tearing up of pavement . . . eliminates extensive ditching, tunneling, backfilling, tamping, repaving. Cuts job time to a fraction. GREENLEE Hydraulic Pipe Pusher often pays for itself on first job. Two sizes — model shown above for pushing 3/4" to 4" pipe. Larger unit, below, for pipe over 4", concrete sewer pipe and large drainage ducts. Power pump (as shown above) also available for extra ease and speed of operation.



TOOLS FOR CRAFTSMEN
GREENLEE

Write today for descriptive literature. Greenlee Tool Co., 2068 Columbia Avenue, Rockford, Illinois, U.S.A.

B. L. SCHROEDER

supervisor of industrial accounting and budget director since joining the company in 1950. Mr. Schroeder has served Highway's utility division in a sales capacity for the past year.

Prior to joining Highway Trailer Co., Mr. Mesler was vice president of the Coin Machine Acceptance Corp., of Chicago, and formerly was associated with L. H. Rosoff & Co. and the American Business Credit Corp., of New York. He was graduated from Pace College in 1937 with a certificate in accounting-business administration and is a member of the National Association of Credit Men.

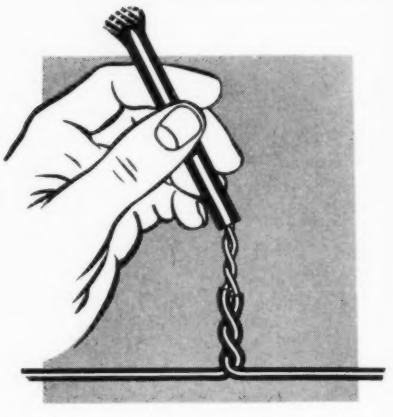
Mr. Christy served more than 20 years in the field of industrial accounting and finance before joining Highway Trailer and during that time he was associated with the Kroger Grocery & Baking Co., Pepsodent-Lever Brothers and the Avildsen Tools & Machinery Co., of Chicago. He was graduated from Coe College in 1929 with a BA degree in social science, and is a member of the National Association of Cost Accountants.

Mr. Schroeder has served for more than 15 years in the sales and administrative fields and previously was associated with the Milwaukee Forge & Machine Co., Ampco Metal, Inc., and the Yates American Machine Co. While at Ampco Metal, he helped introduce high iron aluminum bronzes for use by food processing industries as a corrosion resistant metal. Mr. Schroeder attended the University of Wisconsin and in addition completed a year of study in metallurgy.

Power of Persistence

Our greatest glory consists not in never falling, but in rising every time we fall.—GOLDSMITH.

Superior's "Super-Splice"® is safe and sure!



"Super-Splice" makes splices waterproof . . . from inside out!

Sealed at one end, this plastic splice sleeve is filled with an insulating and waterproofing compound.*

Economical "Super-Splice," a Superior exclusive, makes the splice permanently as good as the cable . . . yet it can be re-entered easily. The compound never hardens or oozes out no matter what the temperature.

Prevent leakage currents and breakdowns in the presence of moisture... good for 25,000 v.d.c. Order "Super-Splice" NOW!

*A Dow-Corning silicone compound.

An REA Standard.

"Super-Splice" is available for use with straight, butt or bridge splices.

For further information on economical "SUPER-SPLICE", write

SUPERIOR CABLE

SUPERIOR CABLE CORPORATION
Hickory, North Carolina

North Electric Co. Names Regional Sales Manager

Announcement is made by D. F. Snyder, North Electric Co.'s telephone division sales manager, of the appointment of H. E. Mundy to the position of regional manager for North's region II—Atlanta, Ga., area.

Mr. Mundy will direct North's sales

H. E. MUNDY

activities in the states of Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia and West Virginia, with headquarters in the North sales office and warehouse in Atlanta.

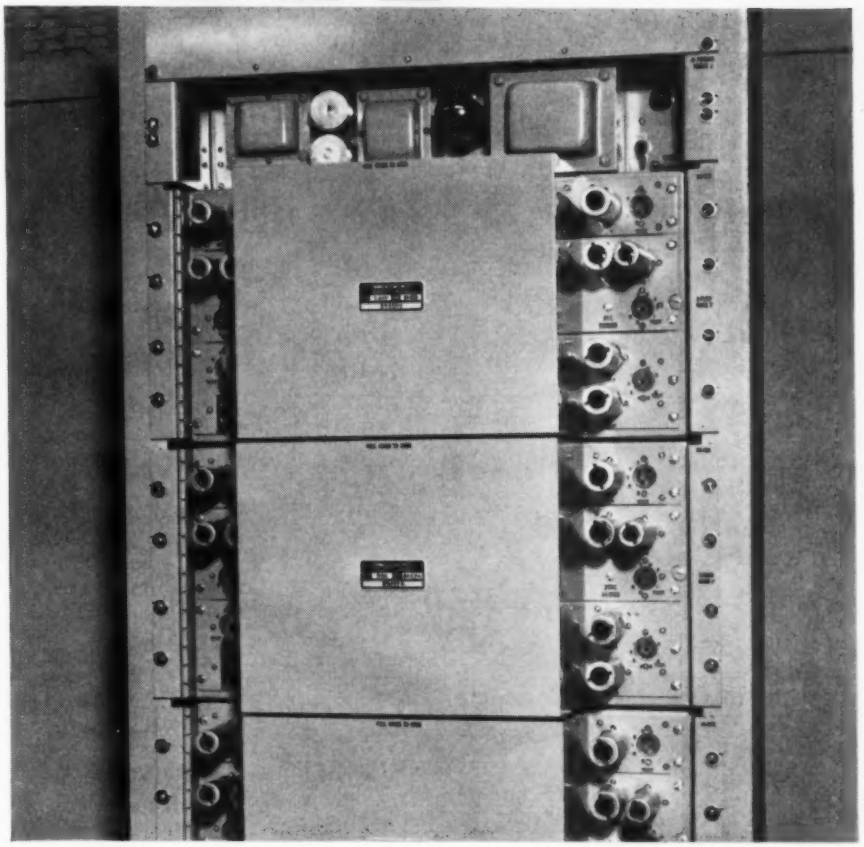
The appointment was effective May 1, North transferring Mr. Mundy from California, where he has served as a North sales representative since August 1953. He replaces W. S. Richardson who retired the first of this year.

Automatic Electric to Give Engineering Scholarships

To encourage more young men to enter the engineering profession, and to furnish some financial support to Northwestern University and Illinois Institute of Technology, Automatic Electric Co. has established an annual $5,000 cash scholarship.

Four annual scholarships of $1,250 each are being made available at either of these colleges to qualified young men graduating from any public or parochial high school in the Chicago area (beginning with this year's graduating class) who wish to study for an electrical, mechanical or industrial engineering degree under the cooperative engineering training program.

Each $1,250 award will enable the student to spend the first year of the program in full-time residence at the school he selects, and will cover the first year tuition, books, laboratory fees and supplies, with any remaining



Sure, you can back-to-back it

If you have other kinds of carrier now, and want to expand with the advantages of Stromberg-Carlson, you can.

The Stromberg-Carlson S4-C carrier operates at standard 0 db two-wire level, or on +4, −13 four-wire levels, or +7, −16 four-wire levels.

This means you can get a back-to-back (electrical) arrangement without complication. It also lets you easily install standard equipment, such as the Compandor, at the four-wire points at the proper levels.

With Stromberg-Carlson carrier, you get a combination of features you won't find in any other. The features give you easy installation, space savings, room to grow and long service.

Let us tell you about them all.

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CONTINUING IMPROVEMENTS IN THE

Murphy "ONE-MAN" Cable Tester

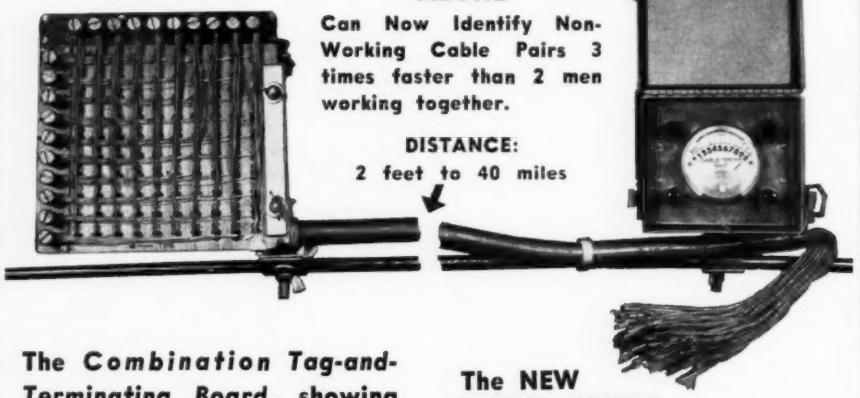
MODEL TTB

ONE MAN WORKING ALONE

Can Now Identify Non-Working Cable Pairs 3 times faster than 2 men working together.

DISTANCE:
2 feet to 40 miles

MODEL CMUW



The *Combination Tag-and-Terminating Board*, showing cable pairs properly connected. Tips — Horizontally. RINGS—Vertically.

The NEW MODEL CMUW
The new weatherproof gasket sealed case is now a part of every MODEL C shipped.

WE SELL DIRECT ONLY TO DOMESTIC CUSTOMERS
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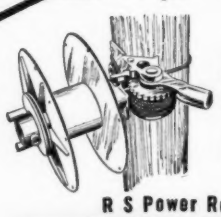
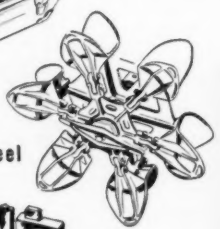
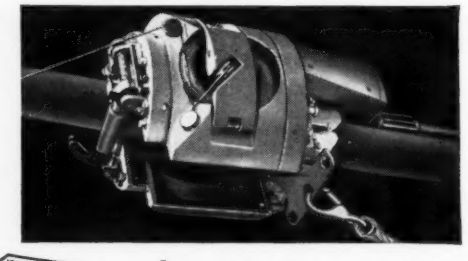
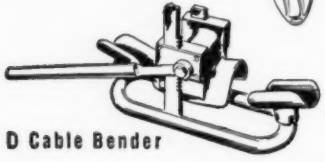


R S Power Reel



C R Power Reel





D Cable Bender

Distributed by Graybar

B, C, D & E Cable Lashers

Special Purpose Tools To Specifications
Literature on Request

Over 250 various items of Line Construction Tools, Maintenance & Pressure-Testing Equipment in stock for immediate Shipment

SPECIALIZED COMMUNICATIONS EQUIPMENT SINCE 1918

CMPCO

amount retained by the school for general purposes.

For the succeeding four years, the student will spend alternate periods at school and in on-the-job training at Automatic Electric. These cooperative work periods will be in process engineering, apparatus engineering, equipment engineering, product design, testing, production control, and, when possible, the Automatic Electric Training School. The student will be paid by the company for these work periods and, with the money earned, will finance the final four years of his engineering education.

Any interested high school senior in the Chicago area, who ranks in the upper 25 per cent of his graduating class and believes he can qualify for an engineering education, is invited to contact the personnel manager of Automatic Electric Co. for further details.

California Boy Builds His Own Automatic Network

The ingenuity and hard work of a 14-year-old Kensington Park, Cal., boy are wrapped up in a small automatic telephone system which today has a network of 28 telephones within a 2-mile radius of his home.

The youth is John Davis, son of Mr. and Mrs. Roland W. Davis, who took a second prize with his automatic system at the Bay Area Science Fair.

John says it took about four months to build the complete system, which is capable of handling 100 one-party telephones. He bought most of the parts from surplus stores, running up a total bill of $60.

An eighth grader at El Cerrito's Portola Junior High School, John first got the idea for the automatic system more than a year ago after toying with several home-made manual systems. It took him about a year to design it.

Surprisingly enough, the youth has only had a general science course during his school years. Last year he entered another ambitious project in the Science Fair—a spectroscope, device for measuring light waves.

John's telephone set-up is effective up to 30 miles without an amplifying system, but he has no idea of extending the present network because, as he puts it, "I might have to get a franchise." There's no commercial aspect involved in his telephone hobby.

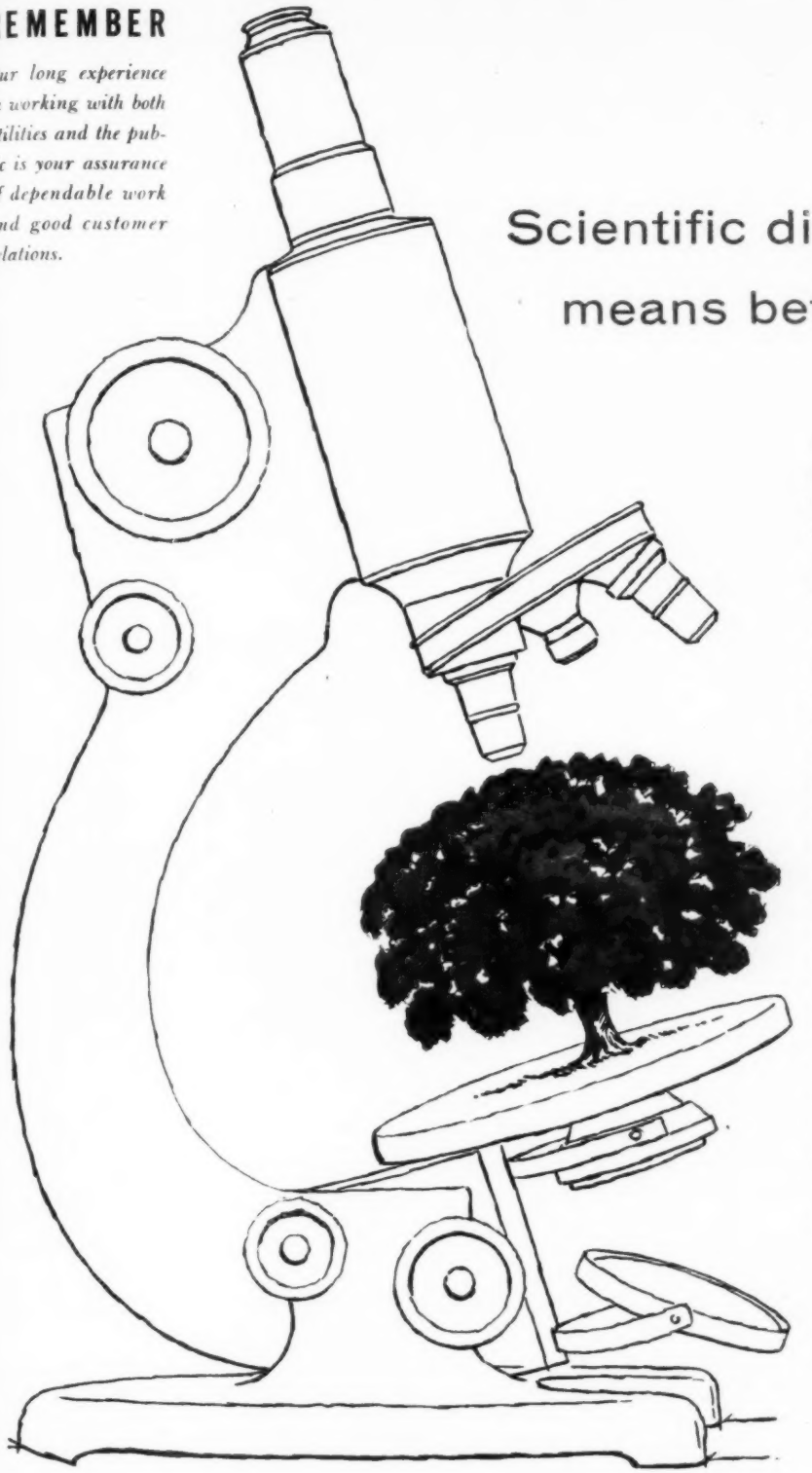
John is interested in becoming an electrical engineer, adding that he might like to work for the telephone company.

Necessary Ingredient

Nothing great was ever achieved without enthusiasm.—EMERSON.

REMEMBER

Our long experience in working with both utilities and the public is your assurance of dependable work and good customer relations.



Scientific diagnosis means better tree care . . .

The basis of any curative treatment for either plants or animals is accurate diagnosis, plus the skill and experience to bring it to a successful conclusion. This means research, not guesswork as well as the best of equipment and ability.

You won't see many tree laboratories comparable to our 200-acre experimental ground and research unit at Stamford, Connecticut, where the day-to-day problems encountered by our field men are diagnosed and ideas for the protection of shade trees are tested and developed under actual growing conditions. These laboratories call for a big investment in both time and money. But to us who want to be sure of results, this painstaking research for the best possible treatment is worth it.

Couple this with an efficient highly skilled field force, thoroughly familiar with local conditions, and you have the well balanced Bartlett organization capable not only of rendering scientific diagnosis but of executing the prescribed treatment in efficient, economical fashion. It is the reason why more and more people are turning to the Bartlett Way—the Scientific Way. It costs no more and it is safer and more economical in the long run.

Consult your local Bartlett representative today for a study of your tree situation. You will benefit by his recommendations.

The Bartlett Way

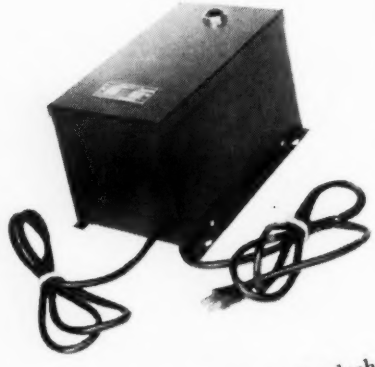
BARTLETT TREE EXPERTS

Home Office, Research Laboratories and Experimental Grounds, Bartlett School of Tree Surgery, Stamford, Conn.
Local Offices from Maine to the Carolinas, and West to Indiana.
See your Local Telephone Directory for Local Address.

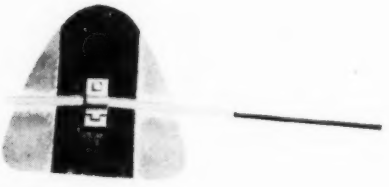
XUM

CHECK THE ADVANTAGES AND YOU WILL

VOTE for line supplies from KELLOGG



Ringing Power Generator for all telephone systems using straight line 20 cycle ringing provides constant reliable ringing power, even over the longest, heavily loaded lines. Made by TELKOR, INC.



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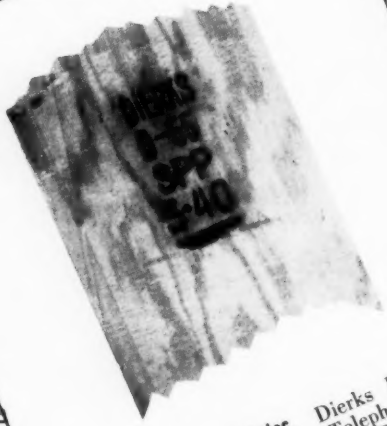

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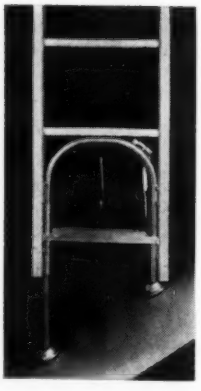

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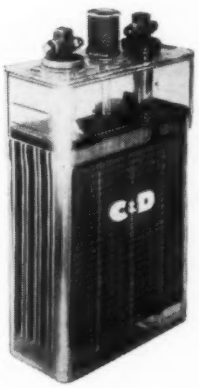

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ORIGINATORS OF THE DIAL TELEPHONE

GENERAL SYSTEM INDEPENDENT

PLANT TECHNIQUES AND MATERIALS

Continued from page 26

minal. Where only one or two drops, ultimate, are connected to an intermediate point, place two-wire terminals. (NOTE: In the unusual situation where the subscriber's station is subject to frequent lightning trouble, a standard outside protector less fuses and equipped with six-mil blocks may be substituted for the two-wire terminal to provide additional protection. The protector ground post is connected to the support wire. A ground rod need not be placed unless required as a ground point for the support wire.)

In high voltage joint construction (power voltages exceeding 2,900 volts to ground or neutral) where the distribution wire is not shielded by overhead open wires or lead-covered cable, a six-pair protector is required at or near each end of the section of rural distribution wire in the jointly constructed lead; also at intermediate points where connections are made for more than two drops or open wire spurs. For only one or two drops, ultimate, connected at an intermediate point, two-wire terminals with 3,000-volt protectors are installed. (NOTE: When distribution wire is placed between two points and there are no subscribers' drops from the RD wire between these points, no additional protection is required.)

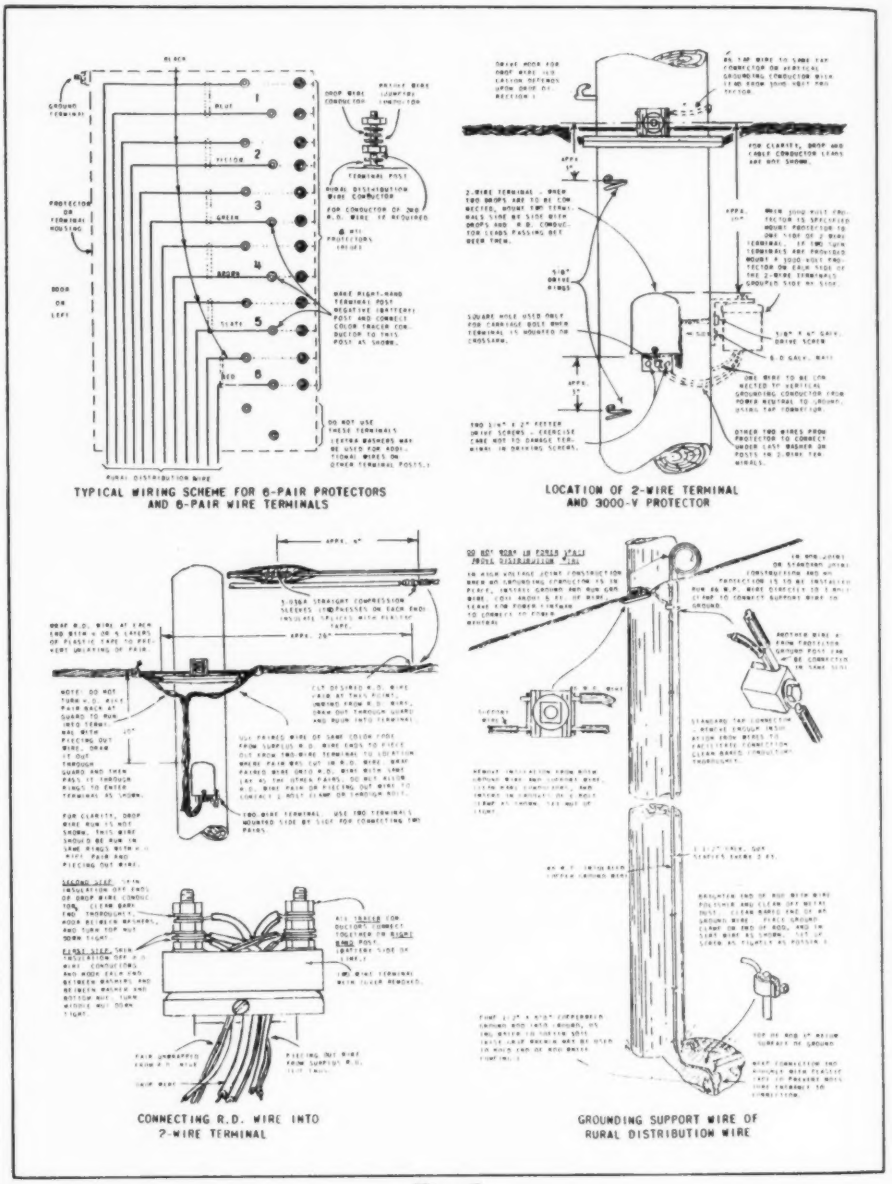
TYPICAL WIRING SCHEME FOR 6-PAIR PROTECTORS AND 6-PAIR WIRE TERMINALS
LOCATION OF 2-WIRE TERMINAL AND 3000-V PROTECTOR
CONNECTING R.D. WIRE INTO 2-WIRE TERMINAL
GROUNDING SUPPORT WIRE OF RURAL DISTRIBUTION WIRE

Fig. 5

When a telephone company installs a vertical grounding conductor, it should notify the power company, so that the connection to the power line neutral will be made by a power lineman *as soon as possible.*

Engineering practices of one large operating company limit lengths of

rural distribution wire to 50,000 feet (about 9½ miles) with maximum loading and 18,000 feet (about 3½ miles) without loading. Within these limits the transmission loss is held to 3 db. compared to transmission with an equivalent length of 19-gauge lead covered cable.

The same company reports that it employes two-men crews to install its rural distribution wire and claims a savings of 40 per cent over an equivalent six-circuit open-wire lead with 250-foot spans. The reduction in annual charges results in the RD wire paying for itself in 2½ years. Not all companies have obtained this savings. In fact, one company reports that it has found the construction cost for its rural distribution wire to be slightly higher than for an equivalent six-circuit open-wire construction.

Figs. 1 to *5* show methods of supporting RD wire, tensioning the spans, terminating the wire pairs, and splicing the conductors. The supporting fixtures shown make use of standard pole hardware items. Other types of fixtures manufactured specifically for supporting RD wire are considered satisfactory for the purpose.

(To Be Continued)

Private Enterprise

"Despite the political cry of 'giveaway' when any diminution of government-owned property is suggested, if much of this property were on the tax rolls, as private property, the tax burden . . . would be materially lightened. Basically, the nation was built on a policy of private enterprise."—Bellingham (Wash.) *Herald.*

Answers to Questions On Page 32

(1) Her voice.

(2) Phrases are the expression of your thoughts in the interchange of ideas with the customer as you try to ascertain and carry out his request.

(3) No. Phrases should fit naturally the condition arising.

(4) "Please" applies when you ask someone to do something, as "Will you give me the number again, please?"

(5) "Thank you" applies when someone has done something at your request. It might also be used when you have requested a detail a second time or when there has been some particular difficulty in understanding the customer.

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- **Happy anniversary**
- **Keep batteries young**
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by C. J. Reynolds, Stromberg-Carlson Company

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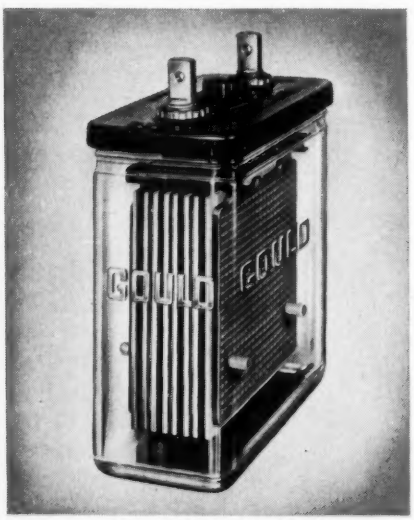

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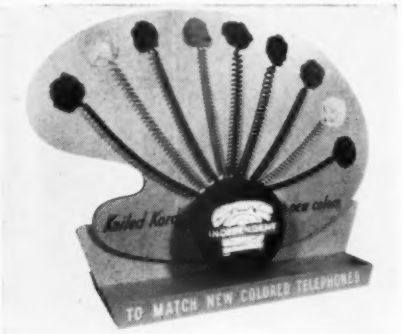

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Stromberg Names D. S. Cook To Public Relations Post

Appointment of David S. Cook as associate director of public relations of Stromberg-Carlson, a division of General Dynamics Corp., has been announced by Stanley H. Manson, director of public relations.

Mr. Cook has been with Stromberg-Carlson since December 1942, when he joined the company as editor of "The

D. S. COOK

Speaker." Subsequently he served as sales promotion manager from 1946 to 1954, and was appointed advertising manager of the radio-television division in July 1954, holding the latter position until taking up his new duties on May 1 of this year. Prior to joining Stromberg-Carlson, Mr. Cook was associate manager of the Collins Management Services, a concert and lecture bureau serving the Northeastern United States.

A native of South Byron, N. Y., and a graduate of Cornell University, Mr. Cook is widely known in the Rochester community through his work in civic and business organizations. He was president of the Cornell Club of Rochester in 1942-43, and president of the Rochester Ad Club in 1954-55. He also served as national president of Alpha Gamma Rho fraternity from 1950 to 1952.

For many years Mr. Cook has been a prominent figure in Community Chest, Red Cross, Boy Scout, Civic Music Association, Chamber of Commerce, Rochester Advertising Council, and other civic activities.

IT&T Names R. S. Caruthers To Executive Staff

Robert S. Caruthers has joined the executive staff of International Telephone & Telegraph Corp. as director of telephone systems research and development, it was announced on May 16 by Edmond H. Leavey, president of IT&T. In his new position he will coordinate all the work in this field currently being carried on both in the United States and abroad by IT&T and its associated companies.

R. S. CARUTHERS

Mr. Caruthers' business career started with the U. S. Bureau of Standards in Washington, D. C., and in 1929 he joined the technical staff of Bell Telephone Laboratories in New York. Later, when operations at Murray Hill were expanded, he was transferred to that point.

While at Bell Labs, Mr. Caruthers conducted fundamental explorations and design work on terminal equipment channel banks for various type carrier systems. As project member and leader he was also active in developments involving the first use of the varistor modulator. Other work included program channel and program terminal equipment. During World War II his efforts were directed towards development of radar systems of the long-range early-warning type, and moving target indicator equipment.

After the war, he was project engineer heading developments of the first short haul carrier systems used on open-wire and cable in the Bell operating companies.

In 1952 Mr. Caruthers accepted the position of chief development engineer for Lenkurt Electric Co. of San Carlos, Calif., directing that company in the field of multi-channel carrier and radio systems development. Here much of his effort was in furthering the improvements and expanding the uses of such systems. He was successful in designing systems making use of transistors, resulting in a degree of compactness in systems equipment not previously attained, the company states.

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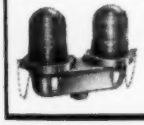

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Mr. Caruthers holds more than 20 patents in conjunction with copper oxide modulators, feedback amplifiers, oscillators, transistor circuits and system plans of various types. A prolific writer, he has written technical articles for *Electrical Engineering*, *AIEE Transactions*, *Telegraph and Telephone Age*, *Wire and Radio Communications*, as well as papers for delivery before technical groups in the electrical and communications fields.

A graduate of the University of Maryland, Mr. Caruthers also received a Master of Science degree in electrical engineering from Massachusetts Institute of Technology. He again returned to the University of Maryland to receive an Electrical Engineering degree in 1929.

Mr. Caruthers is a senior member of both the American Institute of Electrical Engineers and the Institute of Radio Engineers. With the AIEE he has been appointed to both the wire communications and radio communications committees. He is also a member of the American Management Association, Telephone Pioneers of America and both Phi Kappa Phi and Tau Beta Pi, national honorary engineering societies.

Lenkurt Electric Announces Election of Two Officers

Additional emphasis on development of new products and expansion of its long-range research and engineering program has been announced by the Lenkurt Electric Co., San Carlos, Cal., a major supplier of multi-channel carrier and microwave systems to the telephone industry.

G. M. LEBEDEFF

The company has completed plans for increased engineering activity with election of George M. Lebedeff as vice president for research and development engineering, and Gerd D. Wallenstein

G. D. WALLENSTEIN

as vice president for product engineering.

"With increasing use of Lenkurt carrier and microwave systems by small companies as well as large ones, we feel it takes more study of customer requirements in order to design and produce equipment that meets their specific needs," Executive Vice President Kurt E. Appert explained. "The new engineering organization will enable the company to devote more attention to products being considered for development and to those already in engineering laboratories."

In their new positions, Mr. Lebedeff will be responsible for all development work, including manufacturing specifications and instructions to quality control departments in the factory, while Mr. Wallenstein will be responsible for determining Lenkurt's product line, the required product characteristics and the intended field of application.

Mr. Lebedeff has been chief equipment engineer at Lenkurt the past four years. He joined the company in 1947 after 12 years with the electronic manufacturing firm of Heintz & Kaufman where he was chief engineer. Following graduation from the University of California as an honor student in 1929, he received his early engineering experience with the Federal Telegraph Co. and several other firms in the San Francisco Bay area.

Mr. Wallenstein joined Lenkurt in 1948 as a technician and since 1951 has been chief applications engineer. He formerly was with the RCA Victor Co. of China and was service manager for its north China distributor. Educated in Germany, he began his engineering career as owner and manager of a radio service company in Berlin and later had his own radio engineering firm in Tientsin, China.

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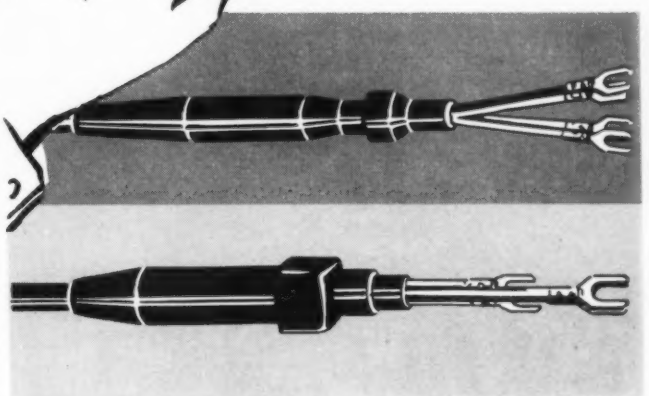

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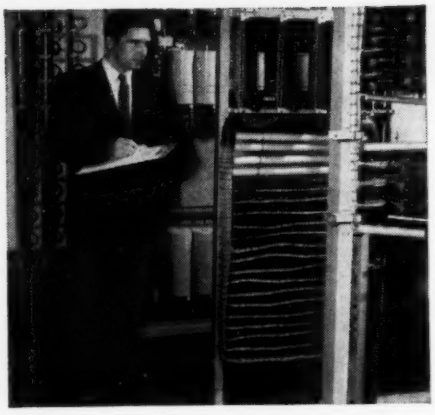

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IN THE NATION'S CAPITAL

Continued from page 19

recognized standards of value. But it found special circumstances justifying the sale in this case; namely, that the town proposed to spend $80,000 improving facilities, including fire protecting services, and that the consumers would be unable to get the benefit of such improvements if the petition were denied.

REA's Largest Telephone Loan

The Rural Electrification Administration on June 4 announced that it had arranged to loan the Texas Telephone & Telegraph Co., Houston, Tex., $6,895,000, the company's first REA loan. This is the largest telephone loan made by REA to date. It will be used to improve and extend service in 21 counties.

The borrower, a commercial corporation, plans to use the loan funds to provide service to 6,889 farmers, ranchers and other rural subscribers. It now serves 7,731 subscribers over 1,780 miles of line. The system presently consists of 10 automatic, eight common battery and 25 magneto exchanges. The company proposes to add five automatic exchanges, retain the present 10 automatic areas, and replace all of the common battery and magneto exchanges with automatic facilities. The borrower will construct 2,267 miles of new line, rebuild 924 miles and use 806 miles of the existing line in place. The remainder of the line will be retired.

The expansion and rehabilitation will enable the Texas company to offer new and improved service to 14,620 rural subscribers over 3,997 miles of line.

At a later date, the company plans to build a headquarters building at Fairfield out of its own funds. For the present, it will continue to use leased headquarters facilities at Houston. However, small commercial offices will be constructed in each of the company's five districts. They will be located at Caddo Mills, Ferris, Newton, Whitney and Fairfield.

A portion of the company's REA loan funds will be used to refinance Texas T&T's existing indebtedness.

Mr. W. G. Winters, the president and general manager of the Texas company, was president of the Texas Telephone Association during 1955, and is now a member of the executive committee of that association.

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Index to ADVERTISERS

	Page
Acme Visible Records, Inc.	3
Alphaduct Wire & Cable Co., The	57
Aluminum Company of America	—
American Appraisal Company, The	62
American Chain & Cable Co., The Page Steel & Wire Div.	—
American Creosoting Company	—
American Electrical Heater Co.	—
American Steel & Wire Co.	2
American Telephone & Telegraph Co.	—
Anaconda Wire & Cable Co.	—
Ansonia Wire & Cable Co., The	—
Armstrong Cork Co., Glass Insulator	—
Arrow Fastener Co.	—
Atlantic Creosoting Co., The	65
Automatic Electric Sales Co.	21, 29, 34-35, 37, 56
Bakelite Company	—
Baker Wood Preserving Co.	—
Bartlett Tree Experts	53
Bashlin Company, W. M.	—
Bell Telephone Laboratories, Inc.	—
Benner-Nawmann, Inc.	—
Berry & Co., L. M.	—
Bethlehem Steel Co.	—
Bishop Mfg. Co.	—
Blaw-Knox Company	—
Brach Mfg. Corp.	—
British Insulated Callendars Cables, Ltd.	—
Buckeye Telephone & Supply Co.	46, 63
Burgess Manning Company	—
Burroughs Corp.	—
C&D Batteries, Inc.	44
Cabaniss-Pogue Company	62
Cable Breather Corp.	—
Cable Spinning Equipment Co.	—
Calculagraph Company	—
Chance Co., A. B.	—
Chase Brass & Copper Co.	—
Cleverly Electrical Works, The	—
Coffing Hoist Div.	—
Commercial Cord & Supply Co., Inc.	61
Cook Electric Company	—
Copperweld Steel Co.	—
Crane, Inc., Carl C.	62
Cullom & Ghertner	—
Davis Construction Co.	—
Donnelley & Sons, R. R.	—
Dow Chemical Co., The	—
Du Pont de Nemours & Co., E. I.	—
Duo-Safety Ladder Corp.	—
Eastman Chemical Products, Inc.	—
Electric Specialty Co.	—
Electromode Div.	—
Everstick Anchor Co.	—
Exide Industrial Division— The Electric Storage Battery Co.	12
Fitchburg Engineering Corp.	—
Foley Constr. Corp., Robert E.	65
General Cable Corporation	13
General Electric Company	—
General Insulated Wire Works, Inc.	—
General Machine Products Co., Inc.	52
General Telephone Directory Co.	68
Gorman-Rupp Company	—
Gould-National Batteries, Inc.	—
Graybar Electric Co.	40-41
Greenlee Tool Co.	50
Haley & Co., R. G.	60
Harris-McBurney Company	62
Henkels & McCoy	65
Heywood, T. A.	65
Highway Trailer Company	—
Hirsch Organization, Inc., Gustav	—
H. J. J. Company	—
Holan Corporation, J. H.	—
Homelite Corporation	—
Hughey & Phillips, Inc.	60
Indiana Steel & Wire Co.	—
International Business Machine Corp.	—
International Harvester Co.	—
International Standard Trading Corp.	—
Irwin-Auger Bit Co., The	—
Johns-Manville	—
Kander and Company, Allen	—
Katolight Corp.	—
Kearney Co., Jas. R.	—
Kellogg Switchboard & Supply Co.	4-5, 39, 42, 54-55
Klein & Sons, Mathias	—
Koiled Kords, Inc.	—
Koppers Co., Inc.	48
Leich Sales Organization	6-7, 31
Lindsay Telephone & Supply Co.	43
Line Material Co.	—
Linen Thread Co., Inc.	—
Lorain Products Corp., The	—
Lowell Insulated Wire Company	—
Markwell Mfg. Co., Inc.	—
McCabe-Powers Auto Body Co.	—
McFarland Company, L. D.	65
Monsanto Chemical Co.	—
Morton Contracting Co.	65
Murphy Engineering Laboratories	52
Natco Corporation	—
National Carbon Div.	—
National Pole & Treating Div.	—
National Telephone Supply Co.	—
Neale Construction Co.	65
North Electric Company	10-11
Onan & Sons, D. W.	—
Overton Co., S. E.	62
Owens-Illinois	33
P & A Manufacturing Co.	—
Page & Hill, Inc.	—
Philco Techrep Div.	61
Plastic Wire & Cable Co.	—
Plymouth Motor Div.	—
Porcelain Products, Inc.	—
Porter, H. K., Inc.	—
Preformed Line Products Co.	9
Radio Engineering Products Limited	—
Raytheon Mfg. Co.	—
Rebuilt Electric Equipment	64
Recordak Corp.	23
Reilly Tar & Chemical Corp.	—
Reliable Electric Co.	67
Remington Rand, Inc.	—
Rex Corporation, The	—
Reynolds Metals Company	—
Roebling's Sons Co., John A.	—
Rolatape, Inc.	—
Runzel Cord & Wire Corp.	66
S&G Manufacturing Corp.	—
Schauer Mfg. Co.	—
Seymour-Smith & Sons, Inc.	—
Sierra Electronic Corp.	—
Sloan, Cook & Lowe Co.	62
Soapstone Duct Co.	—
Stewart Bros.	—
Stromberg-Carlson Co.	27, 45, 47, 49, 51, 58-59, 62
Superior Cable Corporation	50
Superior Electric Service Co.	65
Suttle Equipment Co.	64
Taylor-Colquitt Co., The	—
Telectric Co., The	64
Tel-E-Lect Products, Inc.	—
Telephone & Power Supply Co.	64
Telephone Supply Corp.	—
Telsta Corporation	25
Teletype Corporation	—
Tele-Wire Supply Co., Inc.	—
Telkor, Inc.	64
Templeton, Kenly & Co.	—
Transandean Associates, Inc.	—
Tudor & Yager, Inc.	65
United States Independent Telephone Assoc.	—
United States Steel Corp. American Steel & Wire Co.	2
Coal Chemical Div.	—
Universal Controls Corp.	—
Utility Equipment Co.	64
Warn Mfg. Co.	—
Weikel Mfg. Co., The	65
Western Electric Co.	14-15
Wheelock Signals, Inc.	—
Whitney Blake Co.	16
Williams Inspection Co., Inc., A. W.	62
Willys Motors, Inc.	—
Wiremold Co., The	—
Wyoming Valley Equipment Div.	65
Yankee Tools, a Division of Stanley Tools	—
York-Hoover Corporation	—

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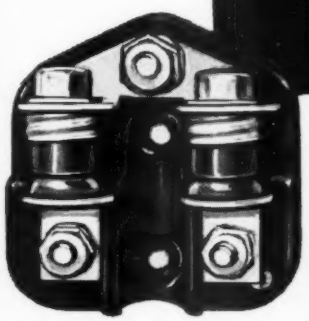

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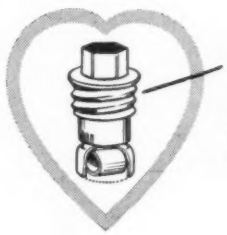

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